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Note by the Secretary-General

The Secretary-General has the honour to transmit to the members of the General Assembly the report of the Joint Inspection Unit entitled "A review of telecommunications and related information technologies in the United Nations system" (JIU/REP/95/3).

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ANNEX

A REVIEW OF TELECOMMUNICATIONS AND RELATED INFORMATION TECHNOLOGIES IN THE UNITED NATIONS SYSTEM

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Joint Inspection Unit

Geneva
1995

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Contents

	Paragraphs	Page
Acronyms		vi
EXECUTIVE SUMMARY, CONCLUSION AND RECOMMENDATIONS		vii
I. INTRODUCTION AND BACKGROUND	1 - 21	1
A. Background and scope of the study	1 - 13	1
B. Methodology of the study	14 -21	3
II. CURRENT STATUS OF TELECOMMUNICATION IN THE UNITED NATIONS	22 - 65	5
A. Trends in current use	24 - 48	5
1. Modalities of use	25 - 38	5
(a) Standard services from national Post, Telephone and Telegraph organizations (PTTs)	26 - 27	5
(b) Leased lines and dedicated networks	28 - 30	5
(c) Value added services	31 - 32	6
(d) Satellite networks	33	6
(e) Field level systems	34 - 35	6
(f) Internal telecommunication structure	36 - 37	6
(g) Common communication standards	38	7
2. Traffic characteristics	39 - 42	7
(a) Non-United Nations traffic	43	7
(b) Headquarters versus field	44	8
(c) Between field offices - including PKOs	45 - 46	8
(d) Data-transmission traffic	47 - 48	8
B. Mechanism for cooperation and coordination within the United Nations system	49 - 69	9
1. Advisory Committee for the Coordination of Information Systems	51 - 52	9
(a) Past work - technical panels	53 - 54	9
(b) ACC Senior Level Task-force	55 - 57	10
2. Use of United Nations Organization network	58 - 62	10
3. Inter-Agency Coordination Committee	63 - 69	11

Contents (continued)

	Paragraphs	Pages
III. LEGISLATIVE BASIS FOR TELECOMMUNICATIONS IN THE UNITED NATIONS SYSTEM	70 - 86	13
A. Basic legislative opportunities	71 - 75	13
B. System-wide Implementation	76 -79	14
C. Definition of the United Nations system traffic	80 - 86	14
IV. THE WORLD OF TELECOMMUNICATION - TRENDS AND PERSPECTIVES	87 - 97	17
A. Changes in the political and institutional sphere	88 - 89	17
B. The Global Telecommunication Networks and Alliances	90 - 93	17
C. Satellite technology	94 - 95	18
D. World-wide telecommunication capacity	96 - 97	19
V. OPPORTUNITIES AND PERSPECTIVES FOR THE UNITED NATIONS	98 - 118	19
A. Broad requirements of telecommunication for the United Nations Systems	99	19
1. Administrative communication	100 - 101	19
2. Operational	102	19
(a) Command and action oriented	103	19
(i) Logistic and directly operational support	104	20
(ii) External operational "business"	105	20
(b) Substantive and governing body support	106	20
(i) Production of information	107	20
(ii) Public access to information	108	20
B. Principles of a United Nations System telecommunications strategy	109 - 115	21
1. Basic principles	110 - 113	21
(a) Relevant services and facilities	111 - 112	21
(b) Cost-effectiveness and tariff structure	113 - 114	21
(c) Reliable services	115 - 118	22

Contents (continued)

	Paragraphs	Pages
(d) Confidentiality	119 - 120	22
(e) Independent telecommunication system	121 - 124	23
2. Rationale for common cooperation	125 - 127	23
VI. RESPONSE OF THE UNITED NATIONS SYSTEM	128 - 160	25
A. Global telecommunication system	133 - 138	25
1. Involvement of specialized agencies	139 - 142	26
2. Flexibility and knowledge of services	143 - 145	27
3. Capacity	146	27
4. Last mile (Domestic network)	147	27
5. Peace-keeping operations	148 - 152	28
B. Alternatives and other initiatives	153 - 160	28
VII. IDEAS FOR A FUTURE TELECOMMUNICATION STRATEGY	161 - 198	30
A. Broader perspective of Technical Cooperation	162 - 167	30
B. Corporate Network	168	31
1. Rationale for Corporate Network	169 - 171	31
(a) Dynamic entity	172 - 178	31
(b) Ownership, control and operation	179 - 183	33
(c) Role of individual United Nations organizations	184	34
(i) Constituents of corporate network	185 - 187	34
(ii) Users of corporate network	188	34
(iii) Operators or suppliers	189 - 190	34
2. Organizational and administrative arrangements	192	35
(a) Rationale for independent entity	192	35
(i) Independent organizational culture	192	35
(ii) Institutional memory capacity	193	35
(iii) Authority	194	36
(iv) Action-oriented organization	195	36
(v) The example of the International Computing Centre (ICC)	196	36
(b) The advisory role of ITU	197 - 198	36
Annex Telecommunication strategy for the United Nations: Involvement of United Nations organizations		37
Notes		38

ACRONYMS

ACABQ	Advisory Committee on Administrative and Budgetary questions
ACC	Administrative Committee on Coordination
ACCIS	Advisory Committee for the Coordination of Information Systems
DATE	Duly Authorized Telecommunication Entity
ECA	Economic Commission for Africa
EDI	Electric Document Inter-Charge
ESA	European Space Agency
FAO	Food and Agriculture Organization of the United Nations
GSM	Groupe Spécial Mobile
IACC	Inter-Agency Co-ordinating Committee
ICC	International Computing Centre
IAPSO	Inter-Agency Procurement Services Office
IMF	International Monetary Fund
IMIS	Integrated Management Information System
INMARSAT	International Maritime Satellite Organization
INTELSAT	International Telecommunication Satellite
ISCC	Information Systems Coordination Committee
ITU	International Telecommunication Union
JIU	Joint Inspection Unit
OAU	Organization of African Unity
ONUMOZ	United Nations Operation in Mozambique
PABX	Private Automatic Branch Exchange
PKO	Peace-keeping Operations
PTT	Post, Telephone and Telegraph
QA	Quality Assurance
RFP	Request for Proposals
SITA	Société Internationale de Télécommunications Aéronautiques
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UPU	Universal Postal Union
VSAT	Very Small Aperture Terminals
WFP	World Food Programme
WIPO	World Intellectual Property Organization

EXECUTIVE SUMMARY, CONCLUSION AND RECOMMENDATIONS

This is a crucial time for the United Nations system in terms of its use of telecommunications and related information technologies. The newly expanded legislative opportunities for operating a system-wide telecommunication system through the granting of some of the same privileges and obligations as a Member of the International Telecommunication to the United Nations Organization, has combined with recent technological and institutional development in the field of telecommunication. This presents the United Nations System with new opportunities for cost-effective, competitive, reliable and flexible telecommunications, provided that the opportunities are seized appropriately.

Currently, the United Nations organizations resort to a varied range of different telecommunication solutions, while there are certain common characteristics in the modalities of use such as leased lines; value-added services; satellite networks and modern internal telecommunication systems. There has also recently been increasing awareness of the need to establish common telecommunication standards for exchange of information.

The telecommunication traffic of the United Nations System covers the spectrum from internal communication, over communication between offices and organizations within the United Nations System, to a very high proportion of communication with non-United Nations entities, for some agencies. The increasingly operational role in the field in emergency and humanitarian assistance programmes and in peace-keeping has meant that the telecommunication traffic of the United Nations is widespread, into even the most remote areas of the world.

The United Nations Organization has for a considerable time been operating various telecommunication services and has, in accordance with its interpretation of the legislative changes, opened them up for access by the specialized agencies. However, although through the inter-agency mechanisms on information systems, certain issues related to telecommunication have been discussed, recently Working Groups have been established specifically for the presentation and review of the proposals and initiatives from the United Nations Secretariat. Furthermore, the restrictive interpretation of the system-wide possibilities for using the available privileges and obligations has not made it possible to fully consider the opportunities.

A broader and more relevant interpretation will highlight the possibilities conferred upon the United Nations Organization. Firstly, the United Nations has the obligation to implement the necessary control to ensure that telecommunication operated for the United Nations is in accordance with the relevant provisions of the International Telecommunication Union. This does not imply an obligation to own the telecommunication operations, just as many Member States in recent years have divorced control of telecommunication through the national telecommunication administration from sole ownership. Neither does it imply a direct operation of telecommunication facilities as long as the necessary overall legislative and management control is present.

Secondly, the expanded legislative opportunities arisen from recent Resolutions of ITU Plenipotentiary Conferences allow for system-wide implementation for both use and operation, and establish a broader definition of United Nations System traffic as traffic for the conduct of the business of the United Nations System. While such definition presents specific problems in implementation, it would open up interesting perspectives for the United Nations System when considering its role of information dissemination to the public and working with partners such as Non-Governmental Organizations in development and humanitarian assistance.

The world of telecommunications has gone through changes in the political and institutional sphere, such as de-regulation, privatization and more commercial dominance leading to substantial cost-reductions, which have been complemented by technological changes, such as the "Information Super Highway", with its integrated linking of all telecommunication means and the increased use of satellite, which have provided or increased telecommunication capacity in many different areas.

In designing a strategy for translation of these opportunities, perspectives and developments into concrete action, the United Nations System needs to consider in detail its particular traffic requirements on a system-wide basis, and what this will mean in terms of cost-effectiveness versus need of operations, especially concerning external access and field level traffic patterns.

The principles of a telecommunication strategy should centre around aspects such as relevant services and facilities, meaning that some services, e.g. emergency and humanitarian assistance, are needed almost no matter the cost; cost-effectiveness so that a United Nations telecommunication system can be competitive with other providers; and reliable services for all parts of the United Nations System. Other issues such as confidentiality can be solved technically without being a fundamental problem. Whether a United Nations telecommunication system needs to be totally independent of other systems, and therefore fully operated by United Nations, has to be seriously reviewed to the point of being dismissed, especially since the feasibility of operating a totally independent system is questionable given the interdependent nature of the world.

The proposal for the Global Telecommunication Network has been a major attempt of response from the United Nations Organization. While this proposal (or elements of it), will presumably form an essential part of any United Nations telecommunication initiative as reflected by the most recent resolution, the broader interpretation of the legislative opportunities advocated here will mean that certain issues need to be more adequately considered. These are issues such as the involvement of the specialized agencies; the flexibility and knowledge of services; the capacity; the coverage of the local or domestic part of the network (the so-called last mile); the impact of humanitarian and peace-keeping operations; and alternatives and other initiatives, including the extent to which non-United Nations operators can be utilized with a framework of control as required by existing legislation.

Telecommunication is an important tool of development and as a United Nations telecom system will be a major factor in the field of telecommunications and potentially a major force in the field and developing countries there will be a basis for linking United Nations telecommunication initiatives with the broader mandate of development.

Given the requirements, principles and context of United Nations telecommunications, the need to consider the system-wide perspective and the suitable way of merging the opportunities offered with the nature of the United Nations System, the corporate network approach seems to be a possible solution. In this context, it should be remembered that operating worldwide telecommunication services is not part of the basic, overall mandate of the United Nations System, and should only be undertaken if it is the most cost-effective way of providing such facilities.

A corporate network would provide the framework, the policies and the strategy needed for the management and control of a unified approach, involving use of existing both United Nations and non-United Nations facilities and services; common negotiation and standards; and where appropriate, common operations. Such a network will be operating on a virtual basis, working to address the important issues of tariffs, priorities, developments of the system, principles of operational control and areas of common interest, where unified negotiation and agreement will be beneficial. It would involve all the organizations in the United Nations system as constituents or partners, as users or clients, and in the relevant circumstances, as operators or providers of certain facilities.

Organizationally, the corporate network would need to operate managerially as an independent entity, with its own appropriate and technically competent and responsive management culture in order to avoid the risk of obsolescence in the rapidly changing telecommunication field. Services and facilities would be the appropriate mixture of United Nations operated, sub-contracted services and external and commercial services, and the corporate network organization would work on a cost-recovery basis, similar to what has been proposed for the International Computing Centre. It would limit its own operational capacity to an absolute minimum, to reduce the administrative and operational burden and involvement. To ensure that the strategy is technically and institutionally sound, ITU should be involved in a strong, direct role of advisor or "internal" consultant.

RECOMMENDATIONS

For Member States

RECOMMENDATION 1

That Member States decide to investigate the most appropriate framework, given the interpretation of the legislative and operationally opportunities available, for a common United Nations System telecommunication strategy through the establishment of a rapid working Senior Level Task force on Telecommunication, within the auspices of the Administrative Committee on Coordination (ACC). [Chapter V]

RECOMMENDATION 2

That Member States decide to promote the notion of a common telecommunication strategy for the United Nations System according to the principles of cost-effectiveness and value for money, and that such notion is adequately reflected in the respective legislative decisions of the agencies of the United Nations System. [Chapter V, especially paras. 110-118 and paras. 125-127]

RECOMMENDATION 3

That Member States request the Secretary-General to consider the new possibilities in strategic perspective, to ensure proper control and secondly to elaborate on the opportunities for system-wide implementation, not merely in his position as Executive Head of the United Nations Secretariat, but also in his capacity as Chairman of the system-wide coordinating mechanism. [paras. 61-69 and paras. 133-136]

For the Secretary-General of the United Nations System as representative of the United Nations

RECOMMENDATION 4

That, upon the decision by the Member States, he implements further investigations to firmly establish the validity of the re-interpretation of the legislative opportunities and to start consideration on how to implement such opportunities, especially in terms of control and in accordance with the relevant Resolutions of ITU Plenipotentiary Conferences. [paras. 61-64, Chapter III, paras. 109-118, paras. 125-127 and para. 136]

RECOMMENDATION 5

That, upon the decision of the Member States, urgent action is taken to establish the Senior Level Task Force and its Terms of Reference. While the Inspector does not want to preempt the findings of the Task-Force, the Terms of Reference should include, but not be confined to, the following issues to establish the appropriate perspective:

(a) the precise institutional framework for the design, development and implementation of a common telecommunication strategy for the United Nations System, and that, bearing in mind the difficulties of adjustment between the rhythm of bureaucratic procedures and the rapid pace of technological progress, other possible alternatives be considered and discussed along the lines suggested by this report, namely the setting-up of a corporate network. [paras. 169-177];

(b) the views of the potential participating and contributing parties and entities should be more accurately sounded to dispel existing perplexities, also in view of improving cooperation and coordination and reducing existing fragmentation linked to independent efforts under way in several entities to set-up or expand internal separate telecommunication systems, a factor causing the problem of their compatibility with any common telecommunication strategy. [paras. 58-62, 109-118 and paras. 139-142]

(c) the principles of the framework, including analysing the telecommunication situation, the characteristics of traffic, the compatibility of existing activities and how, if at all, they are suitable for a common United Nations telecommunication strategy. Particular emphasis should be placed on the field aspects, peace-keeping and humanitarian assistance. [paras. 109-124 and 139-152]

(d) the relationship between the United Nations need for efficient, competitive and reliable telecommunication services, and the United Nations role in development. [paras. 161-167]

RECOMMENDATION 6

That the Secretary-General endeavours, in light of the system-wide approach advocated here, to answer the many questions asked and remove the many doubts raised by Member States about the United Nations project, in order to give convincing evidence that the indispensable requisites of efficiency, reliability, competitiveness, technological quality of the service offered be satisfied before any further decision is taken. [paras. 136-138]

RECOMMENDATION 7

That he investigate the possibility of common negotiation on behalf of the United Nations System in relevant areas, especially with the INMARSAT organization to obtain same status as a Duly Authorized Telecommunication Entity that the United Nations currently has with Intelsat. [paras. 173-174]

RECOMMENDATION 8

That the necessary arrangements be made for involving ITU as an advisory entity to the Senior Level Task Force and, if implemented, the corporate network, and as a partner in the exploration of the existing non-United Nations System telecommunication services and facilities, and the subsequent negotiations with them. [paras. 197-198]

For individual agencies of the United Nations System

RECOMMENDATION 9

That the necessary and appropriate strategic and management support and understanding be made available at all levels, upon the direction of the relevant legislative organs, for the appropriate use of telecommunication in general and the work of the Task Force, in particular. This is to ensure that the management and technical human resources involved in telecommunications are sufficiently technically and substantively qualified to deal with the issues involved. [paras. 68 and 139-142]

RECOMMENDATION 10

That while the above-mentioned investigation process is under way, further execution of any telecommunication project in the United Nations System be adjusted to be in line with the rationale that the approach to a scheme of this nature must be global both in conception and in implementation. Any future initiatives, until a final decision on the system-wide approach, should be designed and implemented in such a manner that it will not exclude the system-wide approach. [paras. 160 and 184-197]

RECOMMENDATION 11

That individual organizations of the United Nations System implement as soon as possible a management control system for providing accurate traffic data to facilitate system-wide analysis of traffic requirements. [paras. 40-42]

I. INTRODUCTION AND BACKGROUND

A. Background and scope of the study

1. One of the most valuable resources of the United Nations System is information. Information is collected, structured, researched, analyzed, interpreted and presented in the course of the operations of the United Nations System. This information has to be shared, communicated, circulated and distributed, and telecommunication is one of the most important and extensive ways of doing so.

2. Telecommunication is therefore one of the main administrative and operational support activities of the United Nations System and one of the single largest, non-human resource cost in the budget of the United Nations System - estimated at over US$ 100 million annually. [1]

3. The efficient and effective use of telecommunication tools and systems such as telephone, E-mail, facsimile, radio, etc., is therefore crucial to the work of the United Nations System. Linked to this is the proper use of supporting technologies such as management and control software for efficient routing of information and the typology of computer systems utilizing telecommunications as an important tool in daily operations. [2]

4. The highly diverse nature of the United Nations System and its transnational nature also makes telecommunications extremely important in connecting the many different parts of the structure.

5. Developments within the United Nations world in terms of legislative privileges for the United Nations Organization [3] to make special use of telecommunication services and facilities have presented the United Nations System with particular opportunities for effective telecommunications, through the extension of the traffic carrying capabilities to the whole United Nations and through a potential very broad and advantageous definition of United Nations System traffic. This provides an opportunity to meet a long-held ambition of the United Nations Organization, dating back to the first sessions of the United Nations General Assembly in the 1940s. [4]

6. Developments in the world of telecommunications over the last five to ten years have been tremendous, providing new opportunities for effective and efficient telecommunication. This has been both in technological terms such as mobile telephone and satellite technology, but - more importantly - also in institutional and regulatory terms with de-regulation, privatization and decreasing cost for many technologies.

7. It is therefore appropriate at this point in time to consider the question of whether a clearer interpretation of the existing and recently expanded legislative facilities provides the United Nations System with opportunities for operating a telecommunication system. This might seem worthy of consideration on its own merit, but is it also feasible and appropriate, given the nature of telecommunication operations and bearing in mind the capacities and means for implementation and operation available to the United Nations System. The issue is especially important given the recent impetus in the United Nations System to place emphasis on the indispensable requirements of efficiency, reliability, competitiveness and cost-effectiveness.

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8. The topical nature of these issues suggests the need for this review of the use of telecommunications and related technologies in the United Nations System. Furthermore, most organizations of the United Nations System have realized the significance of this, for instance through the work of such inter-agency bodies as the former Advisory Committee for the Coordination of Information Systems (ACCIS) (see para. 1), while some organizations have specifically realized the need for a more comprehensive, institutional review. The Food and Agriculture Organization (FAO) in particular requested JIU to consider a study of this kind. [5]

9. In the course of the preliminary investigation as to the feasibility and nature of such a study, it became clear to the JIU that there are several approaches to such a review. It can be of a technical nature, assessing past, present and future technologies in order to make recommendations on which particular technical approach and strategy the United Nations System should take. However, it is also evident that many such complete or partial studies - both by individual organizations and on a inter-agency level - have already been done [6] and that these reviews are anyway best done by the experts involved in the technical and organizational operation of such technologies.

10. Another approach to the review is to focus on the institutional framework for telecommunications and the general organizational use of telecommunications. In the past JIU did such reviews; one in 1972 made a broad range of specific proposals for all types of communications, but made a conceptual point still valid, namely that all communication aspects should in management terms be under one authority. [7] The 1982 report had more of a telecommunication focus, but also made two institutional points still valid. [8] Firstly, it highly emphasized the need for United Nations System cooperation; and through this, it was partly instrumental in the creation of ACCIS. Secondly, it made the point that without support from the highest level of management for telecommunication issues, not much progress will be made. [9]

11. Although there have been few, if any, system-wide reviews of this kind done since 1982, several initiatives of an inter-agency nature have been taken to cover some of the same ground from a mainly technical point of view. Given the nature and mandate of JIU, this report does not intend to duplicate these other efforts, but rather use its unique mandate in an attempt to suggest a perspective and value not provided in other documents or fora.

12. This the Inspector has endeavoured to do in the following through a system-wide review of the principles and framework of use of telecommunications in the United Nations System. In particular, the Inspector has attempted to ask some of the questions and raise some of the issues that Member States, given the opportunity to research and analyze them on a system-wide basis, would have done, especially concerning the institutional and policy implications of the use of telecommunications.

13. With the opportunities available for the United Nations System at this conjuncture in time, both because of external developments and of a re-interpretation of the internal regulatory developments, it is even more important that extensive input and analysis be available to Member States in making decisions about telecommunications, both system-wide and organization-wide. It is the intention of the Inspector that this report would provide such an input, also in view of the telecommunication proposal of the United Nations Secretariat and

subsequent resolutions still in the process of being re-examined. It is important, however, to note, that this report is looking at telecommunication issues system-wide and is not intended merely as an alternative review of the existing proposal by the United Nations Secretariat.

B. Methodology of the study

14. The report is system-wide in nature, because as evident from the analysis provided, many of the opportunities and issues in the use of telecommunications by the United Nations System are at system-wide level, requiring a certain a nount of system-wide decision-making and unified action.

15. The previous JIU reports concerned with telecommunications dealt with the topic in the context of the broader view of communication and therefore included consideration of non-electronic communication such as conventional mail and courier services. The importance of these services in quantitative terms have substantially diminished; and while they share certain institutional and organizational characteristics with the telecommunication means of communication, they do not share the common technical characteristics of electronic and digital communication. This report will therefore confine itself to the telecommunication aspects.

16. In view of the considerable amount of other studies and information made available on this subject over the recent years, this report will not attempt to present a survey on that topic or to summarize it. Only the most succinct points and concepts of this information will be dealt with here to the extent that it supports the main argument.

17. The Inspector has had extensive consultations and exchange of views with officials and representatives of almost all the agencies in the United Nations System, agencies participating in the JIU and other agencies such as the World Bank and the International Monetary Fund (IMF). While the views of the latter are presented informally, they were none the less essential to the analysis; and the Inspector is grateful for the assistance rendered.

18. The organizations not consulted in person by the Inspector were given the opportunity of completing a questionnaire raising the important questions and issues discussed with officials. [10] The view from the field was considered fundamental to the study, and an extensive mission in Africa was carried out, which included a visit to a major on-going peace-keeping operation (PKO). [11]

19. JIU also attended several of the inter-agency working group meetings of officials concerned with telecommunication, which proved very useful in assessing the degree of will and cooperation present and required for future common initiatives. [12]

20. Particularly helpful were the informal exchanges that the JIU has had with numerous officials and technical experts in the field of telecommunication. This field is a highly complex one and without the help of these officials it would have been difficult to understand the many new developments.

21. Finally, in the course of the initial investigations, it became evident to the Inspector that views of certain types of institutions outside the United Nations System such as private, commercial consultancies and research institutions would be relevant. Accordingly, the Inspector has had such contacts, which, while they cannot bear directly on the contents of the study and do not imply any recommendation as to the views or use of these institutions, have been crucial to the analysis in this report. [1]

II. CURRENT STATUS OF TELECOMMUNICATION IN THE UNITED NATIONS

22. At the onset of a review of this nature, it is important to establish the base line in terms of underlying themes and their relevance and topicality in any future institutional and system strategy.

23. The Inspector therefore considers it important to present some of the relevant principles and trends arising from consultations and replies to questionnaires from organizations. This is not supposed to be an exhaustive list, but rather a concise analysis of the main points and some possible implications for the institutional arrangements.

A. Trends in current use

24. The trends and characteristics of the current use of telecommunications can basically be divided into, firstly, the general modalities of use in individual organizations, and secondly in the characteristics of the traffic on a system-wide basis.

1. Modalities of use

25. Through the use of questionnaires and consultations, the following trends of current use and requirements, were identified:

(a) Standard services from national Post, Telephone and Telegraph organizations (PTTs)

26. Several organizations rely almost solely on national PTT organizations and set-up for telecommunication needs. This means that all traffic external to the site of the organization is carried by PTT with no or little use of dedicated networks such as the existing United Nations network and SITA - the international airline network.

27. Cost-arrangements depend on whether it is through special circumstances such as the Universal Postal Union (UPU) and ITU legislative right to specified telecommunication services at certain conditions or whether the organization is of such size that specific rates can be negotiated; otherwise standard rates are used.

(b) Leased lines and dedicated networks

28. In many circumstances, organizations are using leased lines and dedicated network different from standard PTT offerings. This tends to be where the traffic is predictable and constant enough to allow for establishing and maintaining both technical and institutional arrangements for the use of a special line for fixed traffic. The traffic across the Atlantic is one example of this. [14]

29. In other circumstances the unavailability of facilities require organizations to operate a dedicated network either for specific purposes or for general operational communication.

30. There are examples of United Nations organizations using dedicated commercial networks belonging to non-United Nations organizations for carrying traffic. One example is the use of the afore-mentioned SITA, which presently covers most parts of the world.

(c) Value added services

31. The use of various types of value added services such as call-back facilities and message handling systems have increased in the United Nations. [15] These services are often used because they provide a cost-effective solution for a very particular purpose. It is often services provided by commercial carriers and other external service providers. However, it should be noted that a recent ITU Resolution, adopted by the Kyoto Plenipotentiary Conference of 1994, [16] has expressed strong reservations about this practice and is urging Members (of the International Telecommunication Union) to take measures to eliminate such un-authorized practices when they are not in line with bilateral arrangements.

32. A particular type of value added services, that have received increasing attention in the United Nations System in the last few years, is the INTERNET. This is a major communication network which initially linked academic institutions, but now with a broad range of organizations attached. It provides - in principle free of charge except for the line charge for connecting to the nearest computer link - services such as electronic mail and access to a host of databases and bulletin services. [17]

(d) Satellite networks

33. The proliferation in recent years of satellites services and facilities has made these a viable solution to many telecommunication problems. It varies from the use of general PTT systems that have been made more cost-effective and possible by using satellites rather than terrestrial cabling, through dedicated satellite use by the United Nations System such as in the existing United Nations telecommunication network, to the use of specific dedicated, often small scale networks for solving a particular communication problem in a remote location. [18]

(e) Field level systems

34. The field-based organizations, including the peace-keeping operations of the United Nations Organization, have specific telecommunication requirements. Field-level systems ranges from a simple local, short-distance radio network to more sophisticated long range radio systems and satellite systems.

35. Many of these systems are led by the often unpredictable and urgent need of humanitarian assistance and emergencies and are therefore - despite the best efforts of the organizations concerned - often not part of an overall strategy.

(f) Internal telecommunication structure

36. In many organizations, the issue of in-house, internal telecommunication systems and infrastructure is often as important as the external systems. To make the optimum use of any of the modern, external telecommunication technologies, strong, advanced in-house systems

are needed. These range from in-house cabling systems, switching and control systems (e.g. PABXs) to computer networks.

37. Linked to this, is the need for the appropriate internal institutional arrangements in terms of control and management of such aspects as users of electronic mail, access to databases, allocation of charges and user privileges.

(g) Common communication standards

38. For different types of telecommunication needs there might exist different telecommunication technologies and systems. However, in any system, and especially so in the United Nations System, the ability to inter-connect the telecommunication needs and therefore the telecommunication technologies is paramount. For that some standard of communication protocol is needed, and most of the discussion recently in the inter-agency fora has therefore dealt with the issue of slowly moving towards common [tele] communication standards [19] such as X.25 for data-transmission, X.400 for messaging standards and X.500 for directories, for electronic mail and external access to information.

2. Traffic characteristics

39. In a system as diverse as the United Nations System, telecommunication traffic has many forms and characteristics. However, since there are common features of the United Nations system and traffic requirements that cut across individual elements, it is possible to identify straight-forward common traffic elements.

40. These traffic characteristics are unfortunately not based on a complete, systematic analysis of traffic data. Several exercises in the past have attempted to determine this traffic [20] but have reached the conclusion that this amount of data is not available in any comprehensive and systematic fashion.

41. The findings of the Inspector are that, unfortunately, this is still the case. [21] The lack of a management control system to produce these types of data is a serious deficiency in the present situation, where the opportunities made available to the United Nations system combined with the technological developments demand informed and far reaching decisions to be made on the direction of the telecommunication strategy of the United Nations.

42. This deficiency is particularly unfortunate in this situation, given that the telecommunications traffic of the United Nations, despite its extensive geographical coverage, is limited to a relatively small number of known destinations and connections compared to public networks. This would facilitate even more the modelling of traffic patterns leading to better traffic management if such traffic data from individual entities in the system had been available.

(a) Non-United Nations traffic

43. While there are substantial amounts of cooperation and interaction between the various agencies of the United Nations System, it is important to remember that the main part of the traffic is actually outside the United Nations System. It is communication with the various

branches of the government of the Member States, with commercial organizations, with non-governmental agencies, with research institutions and universities and with the general public. Some system-wide estimates are putting this traffic to about 85 per cent of the traffic, [22] while certain organizations estimate that up to 90 per cent of their traffic is outside the United Nations System, i.e. not with another United Nations agency, organizations or programme.

(b) Headquarters versus field

44. The lack of detailed traffic data makes it difficult to establish firmly the characteristics of this type of information, but some estimates are suggesting that from 25 to 50 per cent of the total traffic is between Headquarters and the field. [23] The exact figures will also depend on the definition of the Headquarters and field, but it seems to be clear that the traffic to the field from Headquarters is not of the magnitude that the emphasis on field level activities might suggest. One reason for this could be the lack of comprehensive telecommunication facilities in the field locations, therefore not making it possible or very difficult to carry that magnitude of traffic even if the organizational Headquarters wanted to.

(c) Between field offices - including PKOs

45. It appears that there is very little traffic between the various field locations, which obviously can be explained by the nature of the work of organizations, where decentralization and regionalization might not receive sufficient attention. It can also be explained by the lack of appropriate telecommunication facilities. [24]

46. However, in emergency situations and as part of the humanitarian assistance, a considerable amount of traffic can be carried amongst field locations. The organizational Headquarters might not always be aware of the extent of this traffic. One particular type of field traffic, which is in actual fact predominantly between field locations, is peace-keeping operations. In most peace-keeping operations, more traffic is carried within the area of operations of the PKO than between the mission area and the outside world. [25] The issue is therefore how to solve the last mile, **an issue no less important than the extensive international network**.

(d) Data-transmission traffic

47. In terms of the type of traffic carried data-transmission rather than conventional voice is becoming more predominant. This is due to increased use of various management information systems and computer application, creating a need for exchanging large amount of structured, quantitative data, as well as due to the increased use of electronic mail as a handy "business" communication tool more formal than the voice, but less formal than the hard-copy facsimile. [26]

48. Data transmission creates certain requirements for the capacity of the telecommunication links, and often provides for a more manageable traffic sequence as it can be structured more easily and, except for specific applications requiring instant transmission, be sent when capacity is available or the cheapest.

B. Mechanism for cooperation and coordination within the United Nations System

49. The common features and overall purpose of the United Nations System creates a certain need for cooperation and coordination within the United Nations System in the field of telecommunication. Substantive and operational information has to be shared and common approaches to a range of problems established. The rationale for a very concrete degree of cooperation and integration should therefore be evident. In addition, telecommunication is a field where economies of scale can be enjoyed with substantial cost-reduction as a result. [27]

50. However, although as shown in the following, there has been extensive inter-agency contact on these matters the practical manifestations are not as extensive as one would otherwise assume.

1. Advisory Committee for the Coordination of Information Systems

51. The Advisory Committee for the Coordination of Information Systems - replaced by the newly formed Information Systems Coordination Committee (ISCC), - was set up initially to provide a forum for cooperation and coordination on the general information systems and services in the United Nations System. [28] More specifically it was to facilitate access by Member States to United Nations information and to promote the improvement of the information infrastructure.

52. While this mandate can be construed to deal with information systems in the broad sense of the work comprising both information technology systems, computer technology and telecommunications, it has been shown that ACCIS had concentrated on the mandate of facilitating the access to information by structuring and collecting the information, with less emphasis on the required aspect of developing an appropriate information technology and telecommunication infrastructure by assessing, promoting and designing common standards and systems.

(a) Past work - technical panels

53. For instance, ACCIS worked mainly through technical panels dealing with particular issues within information systems. Out of the nine past and present Technical Panels and Working Groups, two technical panels have dealt directly with aspects of telecommunications. The first, now completed, dealt with the type of technologies, which in this report is referred to as related technologies, i.e. various computer supported telecommunications services such as electronic mail, communication protocols and control and switching systems. [29]

54. The second Panel, which is also now terminated, dealt with the United Nations Telecommunication Network. While it provided a useful forum for discussing the use of these particular services (see para. 66) it served mainly as an information tool for this particular network, rather than as a forum to suggest a comprehensive approach to telecommunications. One output of this technical panel was the ACCIS catalogue of telecommunication facilities, which provided the first attempt at a comprehensive survey of the facilities available. [30] However, it did not receive the complete data, it has not been updated recently; and it did not attempt to collect comprehensive information on traffic patterns and capacity.

(b) ACC Senior Level Task-force

55. The spirit of the above issue is that ACCIS had - due to other priorities and interest of the organizations - not been able to concentrate on some of the more substantive coordination and institutional issues of information systems management. This point was made in particular by the Senior Level Task-force on Information Systems that ACC formed in 1993. [31] Although this task-force concentrated on the strategy of the United Nations System for making available and sharing information with Member States and the public, it did make observations and recommendations dealing with telecommunications, such as the emphasis on interlinked information systems and the use of INTERNET, which have strong implications for the kind of telecommunications operations required, especially in terms of common standards and technologies.

56. For the purpose of the use of telecommunications, one of the most important points of this task-force was the realization that the United Nations System has not until now had a forum in which, whether formally or by inclination of officials involved, it has been able to deal with information technology and telecommunications in both the technical and institutional sense. The newly formed ISCC which has replaced ACCIS is intended to create such a forum.

57. One other important conclusion from this task-force is the need for a separate entity with the appropriate organizational culture in order to operate any common system or activities. [32] While this conclusion is of particular reference to the publishing of common directories and collections of information, and to the operation of computer services, many of the observations are true for telecommunications as discussed later in this report.

2. <u>Use of the United Nations Organization network</u>

58. One of the few practical areas of cooperation is the use of the existing United Nations telecommunication network. The United Nations Organization operates a dedicated network consisting mainly of a combination of dedicated leased lines and assigned satellite connections between the main United Nations Headquarters locations of New York, Geneva and Vienna. In addition there are some leased lines and United Nations owned satellites in locations such as Paris, Bangkok, Santiago, Nairobi and Addis Ababa; as well as limited satellite networks in connection with peace-keeping operations.

59. These facilities enable these locations, in a given fashion, to appear as one network eliminating the need for using standard international facilities, and thereby reducing the cost of the traffic between these destinations. Through a limited number of leased lines from other carriers, certain other locations have, at least in principle, some similar access to the network.

60. Earlier legislation initially restricted the use of this facility to the United Nations Secretariat. Any initiative was therefore taken by the United Nations without a system-wide perspective and only because the United Nations Secretariat had that particular possibility combined with the demand within the Organization for such a system. The legislative changes in Resolution 50 of the ITU Plenipotentiary Conference of 1989, [33] replaced by Resolution 55 of the ITU Plenipotentiary Conference of 1994, allowed specialized agencies to enjoy access to the existing United Nations network. While Resolution 50 potentially presented

tremendous opportunities (see paras. 76-79), the interpretation by the administrative parts of the United Nations Secretariat has been that the fundamental mandate does not confer any system-wide obligations and functions to the United Nations Secretariat, but merely makes it possible to extend it existing services to other parts of the United Nations System as capacity and operation allows.

61. It appears that until now the response from the United Nations System (which in this context is the United Nations Secretariat) to these opportunities, has included little substantive strategic analysis of the full potential of these legislative changes and their implications for the use of telecommunications in the United Nations System. However, this deficiency cannot as such be attributed to the administrative parts of the United Nations Organization as their perspective is clearly limited to operational requirements of the United Nations Secretariat only. It can be considered more the responsibility of the legislative parts of the United Nations Organization, which should provide policy guidance and request the system-wide perspective to be considered, with the responsibility for the implementation of the resulting policies to be assigned to the strategic policy implementation parts of the United Nations Organization.

62. The major point of discussion over the years in terms of the use of the existing United Nations Telecommunication facilities by the specialized agencies is the obvious issue of the cost arrangements. **Many specialized agencies are not convinced about the cost reductions that can actually be enjoyed, given the limited services and the capacity problems.** Some agencies have also found that for their particular uses, there are alternatives, which in the long run will prove very competitive. [34]

3. Inter-Agency Coordination Committee

63. A recent initiative arising from the work of the Technical Panel on the United Nations Telecommunication network is the establishment of the Inter-Agency Coordination Committee (IACC) established to deal with the issues in telecommunication in the United Nations System in terms of the proposed common initiatives of the United Nations organizations.

64. While in principle this initiative could have a wider-ranging mandate, it was initially formed because of a need to inform the agencies of the United Nations System about the initiatives that the United Nations Organization was taking based on its operational interpretation of both the existing and the new legislative opportunities (see Chapter III). Although it has become the focus of some more general discussions, it is clearly perceived as a "supplier-client" forum between on one hand the United Nations Organization as the current supplier of a limited network and as a potential supplier of an expanded network, and on the other hand the United Nations agencies that will be clients of this network.

65. A fundamental requirement for such forum to perform even the function of "supplier-client" dialogue is that the membership of IACC is representative of the users, including the field level. More extensive direct involvement of the field based entities such as regional commissions and major field offices as a major group of clients would have been desirable instead of relying too heavily on the ability of the headquarters to accurately reflect all concerns of the field.

66. The Committee has formed two Working Groups to deal in details with these elements. The first Working Group on the so-called "backbone" network, [35] chaired by the United Nations Organization, is the main tool for sharing information about the basic network linking the main United Nations locations worldwide. It is perceived primarily as an opportunity for the United Nations Organization to inform the specialized agencies and programmes about the plans, while earnest discussion about what type of United Nations telecommunication network is required takes a secondary role.

67. The other Working Group on the so-called Thin Route [36] has been successful as an example of the degree of cooperation needed to meet the telecommunication requirements of the United Nations System. The Working Group, consisting of the field-based agencies and chaired by the United Nations High Commissioner for Refugees (UNHCR), deals with the establishment of the local parts of the network, linking smaller and more remote United Nations locations - including field and emergency locations - with the nodes on the backbone. While certain institutional and organizational issues, such as the need for common premises, inherently should be part of such a discussion but has not, due to the precise mandate for the group, it has nonetheless been able to establish a relatively firm basis for common standards and specifications for the technology to be used for the Thin Route. The specifications are currently in the process of being converted into a standard procurement process through the establishment of Request For Proposals (RFP) to manufactures, so that a common contract, or principles of a common contract, can be worked out for the whole System.

68. The significance of the Working Group on the Thin Route is that the agencies involved have been able to reach a common basis for cooperation, rather than merely coordination, because the concrete subject at hand - and the technical perspective of the officials involved - required so.

69. A general analysis of the work of IACC suggests that for it to be a genuine supplier-client forum for discussing the real issues, it must have the necessary management and organizational support to act upon discussions when required. As example, the Inspector has been informed that the Request For Procurement (RFP) for the VSAT stations has been delayed because of the need for United Nations Secretariat to have its own review of the specifications rather than rely on the Inter-Agency Procurement Services Office (IAPSO) that other agencies and programmes have accepted. [37] While the legal and procedural considerations make this necessary, it does suggest that the organizational culture of the United Nations Secretariat in its given form is less adapted to the quick responsive and flexible action needed in telecommunications. It suggests furthermore that for common action to be possible, common institutional arrangements or principles are essential.

III. LEGISLATIVE BASIS FOR TELECOMMUNICATIONS IN THE UNITED NATIONS SYSTEM

70. The most basic reason for considering at all whether the United Nations System can provide telecommunications facilities in an appropriate and cost-effective manner, is in the opportunities and privileges that the legislative framework is providing. It is crucial to analyze and interpret these appropriately when attempting to translate opportunities into concrete arrangements. This the Inspector will attempt to do in a summary form without extensive legal analysis. [38]

A. Basic legislative opportunities

71. The opportunity for the United Nations System to operate telecommunication networks is based on the status awarded to the United Nations Secretariat as the equivalent of a Member State [39] of the International Telecommunication Union for the purpose of operating telecommunication services. This privilege dates from the original 1947 Agreement between the United Nations and the International Telecommunication Union. [40]

72. In paragraph 2 of article XVI of this Agreement, the general operational requirement of the United Nations, in order to benefit from the same rights as Members of the (International Telecommunication) Union, is that it "undertakes to operate the Telecommunication services under its control in accordance with the terms of the International Telecommunication Convention and the regulations annexed thereto". [41]

73. A more detailed statement of the responsibilities of control to be implemented by an entity with the status equivalent to a Member of the (International Telecommunication) Union, is given in the Constitution and Convention of the International Telecommunication Union. [42] In number 38, Article 6 of the Constitution, it states that the Members (or entity with equivalent status for these purposes) should "impose the observance of the provisions of this Constitution, the Convention and the Administrative Regulations upon operating agencies authorized by them to establish and operate telecommunications..." [43]

74. The key issue is therefore control of the operations or initiatives implemented specifically to cover the telecommunication needs of the United Nations. Indeed, it confers an obligation to any entity with the rights to the same benefits as a Member of the (International Telecommunication) Union, to control such operations. It does not specify whether ownership is an issue, except to the extent that the latter would be one way of ensuring that control. But several traditional Members of the (International Telecommunication) Union - i.e. Member States - have, through privatization and deregulation, given up direct ownership of the telecommunication facilities, but maintained the legislative and regulatory control over and responsibilities for such operations, in accordance with the ITU Constitution.

75. The legislative framework, and recent developments in the regulatory aspects of the telecommunication field, suggest that actual ownership and operation by the Member of the (International Telecommunication) Union (or an entity with the same rights) is not necessary to enjoy the rights. It is only required that any entity working on behalf of the United Nations or under the authority of the United Nations in providing telecommunications, should be

controlled by the latter and operated in accordance with to the relevant ITU provisions. Direct ownership by the United Nations is not needed.

B. System-wide implementation

76. The above privileges are solely conferred to the United Nations Secretariat. Until 1989, only the United Nations Secretariat could actually avail itself of the practical implementations of these benefits. Probably because of the on-going debate and changing perspective on the role of governments in the 198 s, combined with a push towards more cost-effectiveness in all government undertaking, whether national or international, the circumstances were there to allow for the extension of these privileges to the whole United Nations System.

77. Resolution 50 of the ITU Plenipotentiary Conference in 1989, [44] can therefore be considered a major milestone in the use of telecommunications in the United Nations System. It has since been superseded by Resolution 55 of the ITU Plenipotentiary Conference in 1994, which confirms the content of the preceeding Resolution 50 of 1989. [45] In the consultations for this report, Resolution 50 figured prominent, and while all sources consulted, agreed on the significance of that Resolution, the perceived interpretation in legislative and institutional terms was not as clear as will be required to translate the Resolution into concrete, cost-effective action.

78. While the original privileges referred to the traffic generated by the United Nations Secretariat and carried within the Secretariat, Resolution 55 expanded the use of the privileges or right for the purpose of carrying the traffic to apply also to specialized agencies and other United Nations System organizations and programmes. However, it is also stated that only "the United Nations telecommunication network may carry traffic ... on condition that [it is] ... operated in conformity with the Constitution and Convention".

79. The definition of the United Nations telecommunication network becomes essential in any system-wide implementation. In section A above it has been established that a United Nations network is not necessarily a physical or proprietory concept from the point of view of implying ownership by the United Nations, but rather a concept of services and facilities controlled by the United Nations. If the United Nations telecommunication network is to be operated on a system-wide basis, it merely requires that it is controlled by the United Nations under the ITU Constitution and Convention, and with control defined as legislative control to ensure that it complies with said Constitution and Convention. It does not imply direct management or operation of the actual facilities. **A separate entity acting on behalf of the United Nations and under the control of the United Nations is therefore possible.**

C. Definition of the United Nations System traffic

80. The precise definition of what is the United Nations System traffic is essential for any discussion of an integrated United Nations System strategy based on the opportunities offered by the legislative framework of ITU. In order to assess the cost-effectiveness and appropriateness of any common United Nations System telecommunication network, it is necessary to know whether it will actually be able to carry the type of traffic common to the United Nations System. This has to be assessed both in terms of technical aspects - e.g. can

the technology proposed meet the technical requirements? - and in terms of institutional aspects, - e.g. are the organizational arrangements of cost, availability, priorities, etc., comparable to what is otherwise available?

81. Two elements of Resolution 55 are crucial for the definition of the traffic. Firstly, the "use of the network is restricted to the principal organs of the United Nations, the United Nations offices and programmes, and the specialized agencies of the United Nations", [46] which suggest that origin and destination of the traffic matter. Technically, this is the most manageable approach to define traffic.

82. However, the second element is that the "transmissions are limited to information exchanges concerned with the conduct of the business of the United Nations System", [47] suggesting a more comprehensive definition of where the nature of the data or ownership of the data determines whether it is to be considered United Nations System traffic for the purpose of coverage by the United Nations telecommunication.

83. This would open up interesting perspectives for telecommunication between the United Nations System and the many non-United Nations entities such as Member States, national institutions and Non-Governmental Organizations, that are partners with the United Nations System in its many activities. Much of the input or basic data comes from sources outside the United Nations (e.g. Member States through their permanent missions or other institutions, the public, non-governmental organizations); it is then processed, analyzed or discussed in order to become data and information output, or resources to be used both by the United Nations System as such, but also by the same type of entities that provided the basic information originally.

84. This is in particular important when it comes to operational activities such as development and humanitarian assistance where a more open access will be very beneficial for the conduct of United Nations business. But even for the normal administrative and logistical operations of the United Nations System will this provide interesting perspectives. It is even possible to imagine that the definition will stretch to cover telecommunication on any aspect of United Nations System business, even if the communication is between two non-United Nations entities but involving information and data that both entities are concerned as partners of cooperation with the United Nations System.

85. While the legislative framework might provide a coherent basis for this type of use of the United Nations System telecommunication facilities, the technological and operational aspects in managing such an approach are of different, more complicated magnitude. If the origin and destination of the traffic is used, technologies in the form of traffic management control systems exist to handle the complex routing and traffic control needed to determine the nature of the traffic and then route it accordingly through either the United Nations System part of the network or access the external part of the network. Similar technologies will not be able to be used for the nature and ownership of data definition. And the much of the studies and analyses of the telecommunications in the United Nations System, especially by the United Nations Secretariat, does not appear to have been able to pinpoint a detailed, workable definition along these lines. [48]

86. However, because of the greater potential advantages of the legislative definition of any information for the conduct of the business of the United Nations System, the Inspector feels that the possible mechanism for operating such a system should be explored. A starting point would be initially to use, for reason of practicality, the definition of origin and destination of data, while a framework is established for defining the traffic according to nature and ownership based on complete, up-to-date data on the past, present and projected traffic flows. For a fuller discussion of the requirements of the various type, of traffic, see Chapter V, section A).

IV. THE WORLD OF TELECOMMUNICATION - TRENDS AND PERSPECTIVES

87. The field of telecommunication has gone through tremendous changes in recent years, both due to technological developments and changing political and institutional concepts. Telecommunication operations used to be highly government regulated and monopolized, but lately changes have been happening starting in the early 1980s with emphasis on privatisation and de-regulation and currently have focused on the whole notion of the latest manifestation of the information revolution, the information super highway. [49] In the following, the Inspector is enlighting the aspects of these developments that he considers the most important.

A. Changes in the political and institutional sphere

88. In the last decade there has been movement in the political perspective of governments - and national administrations - towards a more varied view of what the operational role of governments and national administration should be in modern society. The emphasis has moved concretely towards a much more direct view of cost-effectiveness and value for money with increased pressure on national administrations to be more cost-effective. [50] Ultimately, it has led to the question of whether government and national administrations should be confined to the core business of governing, and not get involved in support activities not naturally within their domain.

89. The question of cost-effectiveness has moved beyond the national confines and has naturally led to a question of cost-effectiveness in the international dealings of governments. In other words, the same demands placed on national administrations to be cost-effective should be placed on inter-governmental organizations such as the Organizations in the United Nations System. **An integral part of these demands is also the demand to rethink the core business and only operate within the narrow mandate, without getting engaged in activities that are not part of the natural expertise and operations of the organizations.**

B. The Global Telecommunication Networks and Alliances

90. The Information Super Highway is the concept of an extensive network or route, linking individual "stations" such as household and organizations and with the capacity of carrying all electronic traffic from telephones, televisions signals to inter-active telecommunication facilities such as data-transmission and multi-media tools, through an integrated single communication line.

91. The super highway is still only a notion, even in the developed world, but it is rapidly being developed and expanded, and as with many technologies in electronics and telecommunications, it might very soon become affordable even in the developing world.

92. In preparation for this super highway, worldwide networks of various kinds using both satellite technology and terrestrial technologies, are being set up through alliances between various national PTTs and commercial carriers offering extensive networks links or one-stop-shopping for global telecommunications needs for corporations. [51] This is happening at the

moment and is one area in which cost-effective and viable solutions for the telecommunication needs of the United Nations System might be sought.

93. Other developments to watch closely are the expansion in the various mobile communication systems such as the spread of terrestrial based cellular telephones networks [52] to the - at present somewhat theoretical - network of low-orbit satellites spanning the globe to create one global mobile telephone system. [53]

C. Satellite technology

94. The satellite technology is only one of the many technologies involved in the development towards the worldwide networks. But it is without doubt one of the most important aspects with a profound influence on the development of telecommunication. Thanks mainly to this technology, no part of the world is in principle outside the reach of telecommunication systems. The satellite technology has gone through a fairly conventional cycle from infant and expensive through early maturity and more cost-effective, to approaching a mature-type of market of more suppliers and more customers, where satellite technology is comparable to more conventional technology. [54]

95. This mostly technological development will, combined with de-regulation trends, lead to further price reductions in satellite space or transponder capacity, the basic commodity of the satellite trade. Additionally, there has been a reduction in the cost of terrestrial equipment needed to utilise the satellite technology such as earth stations of all sizes (from brief-case INMARSAT to major earth stations). [55]

D. Worldwide telecommunication capacity

96. One development that has been particularly helped by the advent of satellite technology, is the increase in the coverage and capacity of worldwide telecommunications. In many areas of the world, the national PTTs - and in some places other carriers - have been able to install their own satellite stations with capacity for mainly international traffic, beyond what the local, national economy at the current level of economic activity requires. The demand for telecommunications and the tariff structure might not always change in relation to changes in the technical and physical capacity, thereby leading - depending on the circumstances - to either under-utilized capacity (where international rates are kept high to save foreign exchanges) and shortage of capacity (where rates are subsidized in order not to make international calls beyond the purchasing power of most people). [56]

97. However, in almost all cases, any available capacity is on the international links. The domestic network is extremely under-developed in many parts of the world because of lack of enough satellite stations, and more importantly, because of lack of local equipment to cover the last mile from the individual place of communication to the nearest earth station for connecting to the satellite.

V. OPPORTUNITIES AND PERSPECTIVES FOR THE UNITED NATIONS

98. This section attempts to draw up some broad principles of requirements and perspectives for use of telecommunication in the United Nations system. It is the interpretation of the Inspector, but it is based on a careful process of extracting the underlying themes of the consultations and replies to the questionnaires.

A. Broad requirements of telecommunication for the United Nations System

99. One of the basic purposes of this report is to assist Member States in deciding what strategy the United Nations system is to follow in the use of telecommunications. To do this it is important to understand what those requirements are. The Inspector would therefore like to propose the definitions of requirements given below. While it is recognized that the Inspector is not able to fully determine the broad requirements of individual organizations - and is not intending to do so anyway - it is considered that by proposing these definitions, a basis for more detailed and directly appropriate analysis of the requirements can be carried out.

1. Administrative communication

100. One of the most fundamental data requirements is the sharing and exchange of administrative data as part of the day-to-day operations in formalized systems. This is procedural data on such matters as personnel, budget and procurement, which while important in general is not critical and often existing in several context and therefore more easily managed. Over a time-frame and within a location, it has a predictable and regular flow of data that can easily be managed to make the most cost-effective use of available telecommunication facilities such as batch-processing. [57]

101. In the future, this will become a very important part of the flow of information in the United Nations system as formalized systems - such as the recently developed Integrated Management Information System (IMIS) - are developed completely and implemented in many (if not all) agencies. [58] The implementation of the Integrated Management Information System of the United Nations Secretariat, and the possible use of this system in adapted form by other agencies, will have an impact on the characteristics of data transmission. However, it will not be fundamental since it can be fitted into the above definition of data traffic. Furthermore, the delay in the IMIS system is likely to even out the required increase in capacity.

2. Operational

102. Operational communication is a wide variety of communications required for the successful operation of the United Nations system. It deals with the direct implementation of the mandates rather than merely supporting the physical or administrative infrastructure.

(a) Command and action-oriented

103. This is the type of operational communication where extensive communication takes place back and forth between points within short periods and not necessarily part of a regular, formalized exchange. It obviously overlaps with administrative communication, but it will be less regular and predictable at the macro level. Two main sub-areas can be identified.

(i) Logistic and directly operational support

104. This is communication in direct support of operations and activities in the field, especially peace-keeping, humanitarian assistance and other emergencies, in terms of deployment of resources and exchange of orders and instructions. Crucial for this type of communications is reliability in terms of knowing that communication links are always there. Direct person-to-person communication in real time is an essential part of this. [59]

(ii) External operational "business"

105. A particular type of operational communication is the communication outside the United Nations system for the purpose of conducting normal organizational functions such as procurement, recruitment, etc. This type of traffic will require access to the common public networks. However, with the new opportunities for allowing external access by non-United Nations entities according to the interpretation advanced here (see Chapter III) - and provided the technical issues in implementing such a policy can be resolved - it will be confined to instances where the telecommunications framework of the United Nations system does not reach.

(b) Substantive and governing body support

106. A major part of the work of the United Nations system is the substantive work carried out as part of the traditional mandate of negotiating, standard-setting and research.

(i) Production of information

107. This type of traffic is the exchange and transmission of reports, conference documents and other substantive material in support of legislative and conference work. The characteristics of the traffic of this essential core business of the United Nations system, are that of a large amount of less time-critical data at long and unpredictable intervals. [60]

(ii) Public access to information

108. The information produced and processed in the United Nations system has to be made available to the public at large through access to the public networks in a fashion which is both cost-effective and suitable for the United Nations system and for the general public. The INTERNET concept, which has caused tremendous interest in recent years, provides extra-ordinary opportunities for the United Nations system for this type of communication, provided the access to the INTERNET is worldwide and as easy and affordable as other means of dissemination of public information. [61] One possible way for the United Nations system to ensure this is to give serious consideration to a worldwide United Nations technical

cooperation project to establish and initially support local INTERNET nodes and servers in locations where these are not otherwise available.

B. Principles of a United Nations System telecommunications strategy

109. In the previous section, the Inspector has attempted to highlight some of the past initiatives and the various issues already encountered. But in order to be able to take the issue further, it would be useful to determine the principles of any strategy. While these principles are clearly the opinion of the Inspector, it is nonetheless the intention to initiate a discussion of these principles and to provide some helpful indication of what these principles might look like.

1. Basic principles

110. The following basic principles have been developed out of an analytical summary of the ideas and concepts presented by the various organizations in the course of the consultations carried out for this report. [62]

(a) Relevant services and facilities

111. The United Nations system is in the business of carrying out the mandates and not in the business of either providing telecommunication or being the most cost-efficient. [63] The United Nations needs to use relevant services and facilities even if there is a certain cost involved. [64] It is therefore essential that any telecommunication services actually provide access to the facilities and technologies needed for a given part of the mandate at the given time. For instance, in cases of emergency, the United Nations system needs to have a certain type of telecommunication, whatever the cost. [65]

112. Similarly, certain parts of the mandate of the United Nations system require the performance of activities often attributed to more commercially oriented organizations. This could mean access to telecommunication services and facilities not normally considered part of the United Nations system. [66]

(b) Cost-effectiveness and tariff structure

113. Having established the services and facilities required, it is obviously crucial that these services and facilities are provided in the most cost-effective manner. Each and every organization in the United Nations system expresses the need to be cost-effective as one of the most primary considerations. Any service has to provide the best value for the money according to the objectives, and if this is not the case, there should be enough flexibility in any strategy to either change this or to allow alternative access to facilities and services which do provide best value for money. [67]

114. The choice of principles for the tariff structure is essential for achieving cost-effectiveness. The tariff structure should reflect the efficiency and reliability of service in relation to cost of alternatives. It might therefore necessarily be differentiated depending on circumstances and location, as it would be difficult for many agencies in the United Nations system, for reason of cost-effectiveness, to subscribe to a telecommunication strategy that was

not sufficiently differentiated in charging principles to be competitive with alternatives in different locations. [68]

(c) Reliable services

115. The general mandate of the United Nations system is concerned with important and often critical issues, requiring reliable communication and ensuring that the communication links are always there at a satisfactory capacity and cost, with appropriate contingency plans.

116. It is important to distinguish between reliability, security and confidentiality. In many connections, the need for the United Nations to have secure telecommunications has been translated into the need for an independent United Nations telecommunication system, totally outside other existing telecommunication means and under the control of the United Nations.

117. To determine whether this is appropriate, a distinction has to be made between operations, including both emergency and non-emergency work of the United Nations, versus a situation where there is an emergency directly affecting United Nations personnel and installations.

118. During normal operations, it is clearly an issue of reliability as defined in para. 109. Normal administrative and operational data has to be communicated in a reliable way, and would therefore require sufficient capacity and contingency arrangements. If a security situation arises, where United Nations personnel and installations are at risk, normal operations and therefore required capacity will be greatly reduced or even halted and other existing means such as portable satellite systems would be a viable solution both financially and logistically. Using such technologies communication (although limited) will always be possible from any location. [69]

(d) Confidentiality

119. The confidentiality issue is considered much less important in terms of system-wide approach and does not require an independent telecommunication system in order to be fulfilled. There are several reasons why it is considered less of an issue in this context. Firstly, at an overall level of approach, the United Nations should stand for a high degree of transparency and in the nature of the work, little is and should be confidential as such. Secondly, technologies today exist, such as encryption and scrambling that work independently of the telecommunication systems needed. Such devices have for long been used by the diplomatic service for confidential information. [70]

120. The issue of confidentiality can therefore be considered an individual issue for each organization as it is often an issue of institutional arrangements and the use of particular, de-central technologies. There might therefore not be a system-wide solution beyond ensuring that the choice of technology by individual elements of the system is compatible with the overall system-wide approach.

(e) Independent telecommunication system

121. The notion that the United Nations Organization should build its own telecommunication system has a long history and was originally related to the need for the Secretary-General and his Secretariat to have access to Member States, especially in emergencies. [71] While this is an important operational consideration, it does not suggest per se that the basic United Nations mandate includes an obligation to operate an independent telecommunication system; it does not correspond to the legislative framework as given by Resolution 50 of the ITU Plenipotentiary Conference of 1989 (see paras. 71-79; and moreover, it does not accurately reflect the suggested principles for a telecommunication system, outlined above (see paras. 109-124).

122. Furthermore, the idea of an independent telecommunication network raises the question of whether this independence is needed in order to preserve the integrity and confidentiality of information. [72] Such questions are not within the scope of telecommunication systems, but even if such information was flowing, its integrity could be preserved using the confidentiality technologies mentioned in para. 119.

123. Finally, in organizational and practical terms the notion of an independent and separate United Nations telecommunication network would be difficult to achieve. There will always be a certain amount of reliance of factors and entities beyond the control of the United Nations - for the simple reason that it does not operate its own satellites and furthermore it would not be able to provide complete physical security for all installations [73] - and any system is only as strong as its weakest link.

124. The main outside reliance on any United Nations system is the need to cover the last mile within individual countries. In contrast to national PTTs, which can achieve a high degree of domestic independence because of the defined area, the United Nations traffic pattern is probably the most extensive and thinnest flow of traffic in the world. [74] This makes it extremely difficult to guarantee an independent network able to operate in all circumstances, without using a large variety of different technologies and services to connect all United Nations premises in a particular location. [75]

2. Rationale for common cooperation

125. The merger of the opportunities presented by the unique status of the United Nations Secretariat (paras. 71-79), the traffic requirements of the United Nations system as a whole (paras. 99-113) and the principles discussed above (paras. 109-124) are the rationale for a common United Nations system approach. Only if a strategy combines these elements in a way acceptable to all parts of the United Nations system, will such strategy succeed. The fact that the United Nations system has a certain privileged status as an organization in terms of telecommunications, does not inherently mean that all these privileges should be utilized. [76]

126. The size and importance of the United Nations system is a rationale in as far as it provides economies of scale and therefore a certain amount of presence as a client in the telecommunication market. However such economies of scale can only be enjoyed if there are unified requirements, action and will to work as one actor.

for its own telecommunication - but the responsibility of the coordination role of the Secretariat through ACC mechanisms which - on behalf of the Member States - have not seen these strategic perspectives.

135. The proposed project has been presented on several occasions to the specialized agencies and was formally presented to the Fifth Committee at the extended 48th session of the General Assembly in July 1994. Some reservations were expressed in the resulting resolution about the basis of the analysis of the proposed plan, particularly in regard to the possible alternatives, cost-effectiveness, consideration of the total requirements of the whole United Nations system as part of a system-wide approach, and the legal and institutional aspects of the plan. [78]

136. One possible conclusion for the United Nations Secretariat, and to be clearly addressed in forthcoming reports of the Secretary-General in addition to the directly requested issues such as outsourcing and common negotiation, is that Member States by expressing these concerns, are asking the United Nations Secretariat as part of its coordinating role, to take this system-wide, strategic perspective and to fully consider the maximum interpretation of the existing legislative opportunities.

137. The resolution also expressed specific concern about whether the perspectives of the specialized agencies have been sufficiently involved but recognized the need to upgrade certain facilities of the existing United Nations telecommunication system and approved at this stage certain action in this regard. In doing so, the resolution made it clear that this approval did not constitute a precedent for any future plans and financing. However, the upgrade of these facilities will obviously constitute an important operational element in any future United Nations telecommunication strategy. [79]

138. Many of these reservations are underlying themes of the analysis in this report and the upcoming reports of the Secretary-General, [80] (see paras. 154-155 below) which was requested by the Fifth Committee, is supposed to address those questions from the perspective of the entity acting as the operator and supplier of these services. The Inspector would like to address some issues expressed by the receiver or clients of a common United Nations telecommunication service.

1. Involvement of specialized agencies

139. If one is intending to provide services to a range of organizations, a detailed and sound knowledge of their requirements and a good marketing strategy of continuous involvement and consultation are necessary. A proper demand analysis with detailed and continuous input from the potential clients is needed to ensure that the services will be accepted. [81] While it is inevitable that a plan prepared by one entity to be operated by that entity for the use of that entity as well as other entities, will be heavily influenced by the requirements of that entity, it is a deficiency if such a plan does not cater to the needs of these other entities.

140. Many of the officials consulted for this report felt that not enough prior consultation has taken place before the plan was presented and that the information on the cost and institutional arrangements provided in the plan - both in the formal presentation and in the

informal discussions with the United Nations Secretariat - was not sufficient enough for any serious consideration, commitment or involvement from the agencies. [82] These might, on their side, have been slow in responding to the initiatives, when appropriate.

141. This is a major plan and although it is obvious that there are uncertainties, the notion that one cannot provide more detailed information until the project has been developed and first phases implemented is not a useful approach. [83] The development of plans and strategies of this nature is done on a continuous basis by organizations such as commercial carriers and corporate planners and consultants.

142. However, given the pressure of daily work and the nature of many United Nations agencies, with few resources or concepts available for proper strategic planning, it might be understandable that few, if any, telecommunications units or departments of the United Nations system will be able to do justice to the task of developing, designing and implementing a telecommunication system for the whole United Nations system.

2. **Flexibility and knowledge of services**

143. The exploration of the Inspector has evidenced that an in-house entity, integrated within a particular organization and its way of thinking, is not ideally suited in terms of perspective, knowledge and responsiveness to conduct a planning exercise of this system-wide nature, and subsequently implement such a plan and strategy. [84]

144. This introduces the issue of flexibility and the need to be responsive to the rapidly developing field of telecommunications. Assessing and providing telecommunication services and facilities is not a natural core activity of the United Nations system. It takes detailed knowledge of available technologies, a particular kind of management approach and needs a type of responsiveness not common for the United Nations system.

145. A particular aspect of the flexibility and responsiveness is awareness of the changing market circumstances and opportunities, so that any given service or facility can always be provided at the most opportune cost. This requires an intimate knowledge of the market that organizations of the United Nations type might not inherently possess. In terms of the proposed Global United Nations Telecommunication Project, concerns have been raised about the range of basic cost scenarios and assumptions about possible changes in cost of comparable services. [85]

3. **Capacity**

146. Another concern is whether the proposed plan, from a system-wide perspective, has sufficient built-in capacity. The capacity limits have to be determined and the mechanism for expanding the capacity firmly established. [86]

4. **Last mile (Domestic network)**

147. The interest in the Thin Route part of the network (see para. 67) illustrates a great concern over the ability of the United Nations telecommunication system to reach even smaller United Nations premises and locations. This is crucial as it is where the real interest resides

for many of the United Nations agencies because most problems are experienced there with telecommunication. The exploration of the Inspector has shown unanimity on this point. [87]

5. Peace-keeping operations

148. But problems of the last mile are not confined to the field-based programmes and specialized agencies. It is also a major concern for the United Nations Secretariat itself in the implementation of its peace-keeping operations. The telecommunication needs of peace-keeping operations are one of the main elements of the total telecommunication needs of the United Nations Secretariat and therefore a major justification for the proposed project.

149. While estimating that future telecommunications needs of peace-keeping operations are very difficult, and as such not attempted in the proposal in any detail, [88] it might be of greater concern that the part of the telecommunication needs of PKO emphasized in the proposal, namely the communication between PKOs and the various other United Nations installations (i.e. the international telecommunication), appear to have a different focus from the concerns of the operational aspects for which PKOs face tremendous obstacles.

150. The Inspector has observed through the field-based investigations that real telecommunication problems of PKOs are in the last mile, having to establish a domestic network capable of reaching all parts of the operation area in order to assure contacts often critical for the execution of the operation itself. [89]

151. A further observation is that, when it comes to PKOs, flexibility is crucial and any telecommunications framework has to allow for the circumstances changing quickly, both politically and operationally, to the point where significant fluctuations in the level of PKOs have to be planned for. Planning for fluctuations often only consider fluctuations upwards, leading to adopting solutions bases on high present activity level, which then at a future lower activity level can no longer be justified.

152. Planning for fluctuations in activity level also applies to the field of humanitarian assistance. Depending on the political situation and the strategy of the United Nations, the overall activity level for humanitarian assistance in general is maybe more likely to remain at the present levels, especially since many of the telecommunications needs for humanitarian assistance are in common with other field-based activities of the United Nations.

B. Alternatives and other initiatives

153. The proposed Global Telecommunication Project appears as an isolated solution to the telecommunications needs. There seems to be little indication that alternative proposals have been considered, and in general, the comparison appears to be only between the present situation with the current cost structure and a future situation of the new United Nations-operated network. The project gives little consideration to possible future developments with more outsourcing, more common negotiation in economies of scale scenarios and use of the potential cost-reductions, especially in satellite space.

154. The first interim report of Secretary-General of the United Nations in November 1994 [90] discusses only very briefly these issues and dismiss in principle the notion of complete sub-contracting approach and outside operators except in very defined and specific circumstances.

155. While a further more detailed report of the Secretary-General is being prepared to provide the reasons for this view, what is maybe a more fundamental concern is that the report (as well as previous reports on this) assumes that "the resolution [resolution 55 of the ITU Plenipotentiary Conference at Kyoto, 1994] is based on the assumption that the telecommunication network in question would belong to the United Nations", [91] where in actual fact it is the control rather than ownership of the telecommunication facilities operation on behalf of the United Nations system, that matters (see paras. 80-86).

156. Furthermore, "if ownership ... were to be transferred to an outside entity, the question as to whether and under which terms and conditions the network might carry traffic of the specialized agencies would have to be re-examined by all parties concerned" [92] might not necessarily be true provided the issue of control is taken care of according to the Constitution and Conventions of ITU.

157. It therefore appears that it is possible to apply somewhat different fundamental principles in assessing any alternatives and other initiatives in the operation of a United Nations system telecommunication framework.

158. It also appears that initiatives within the United Nations - such as the MERCURE project of the United Nations Environment Programme (UNEP) for establishing a VSAT satellite network for environment data based and with a system supplied by the European Space Agency - are not even mentioned in the proposal, although extensive consultations and arrangements for potential inclusion in this project have actually taken place. [93]

159. The Inspector has not been able to discover the full nature of these consultations or arrangements despite several attempts to obtain this information from both United Nations Secretariat and from UNEP. While the absence of the complete information makes it difficult for the Inspector to make any observations on the relevance of the MERCURE project, the only known information stating that an exclusive contract has been signed with ESA to set up independent earth stations and hubs in Nairobi and Bangkok, would seem to indicate either a somewhat marginal role in the overall approach or a duplication of parts of the system to the extent of disclosing a lack of coordination at the relevant levels.

160. The omission of any reference to the MERCURE project somewhat reinforces the impression of an insufficient perspective and a lack of global approach to the rapidly changing world of telecommunications. No wonder that preoccupations of Member States are reflected in the above-mentioned resolution. The legitimate questions should be more exhaustive and convincingly answered, and the perplexities removed before any final decision is taken.

VII. IDEAS FOR A FUTURE TELECOMMUNICATION STRATEGY

161. In the preceding sections, the Inspector has reviewed the status of telecommunications in the United Nations system, established requirements on a system-wide basis and suggested some principles for a strategy for the use of telecommunication. This can be part of the basis of the discussion in the relevant fora and decision-making organs of the United Nations. However, to lead this discussion into the realm of concrete and applied action, the Inspector would like to present, in this section of the report, the following ideas and proposals for a system-wide response to telecommunication.

A. Broader perspective of technical cooperation

162. Before outlining the proposals, the Inspector would like to make some observations about the overall perspective of the use of telecommunication in the broad mandate of the United Nations system.

163. While the use of telecommunication is, for operational purposes, an administrative and support function, it none-the-less cannot, either operationally or conceptually, be separated from the purpose and rationale of the United Nations system. One of the major purposes of the United Nations is to serve as an instrument of development of Member States. Many actions and programmes have either directly or indirectly a tremendous impact on the development of individual Member States. The United Nations system is one of the major forces, and even the consequences of administrative and support functions can be widely felt. [94]

164. Telecommunication is often considered an essential part of any modern development. It can serve as a catalyst for development by linking even remote parts to the global economic system and thereby create new economic opportunities. This is the concern of many governments and many telecommunication initiatives are taken and activities supported by the national telecommunication authorities as the main suppliers of telecommunication services.

165. It might therefore be desirable if a common United Nations telecommunication strategy were to be placed in the broader context of its use as a major tool of development. [95] This is especially true if the type of telecommunications network that the United Nations system might contemplate, will share problems of the national PTTs by having to reach many different, often remote locations with varied traffic. For this to happen, the use of a United Nations telecommunication network has to be expanded to defined types of non-United Nations traffic such as dealings with partners and players in development programmes and in the technology transfer.

166. Such an approach will raise concerns of United Nations entering into competition with the conventional PTTs, but it will be possible by proper coordination and cooperation with existing telecommunication initiatives and through a defined strategy, to ensure that the various elements complement rather than duplicate each other. [96] In this connection, it must be remembered that any United Nations telecommunication system will not work in isolation, will not be able to be operationally independent (see paras. 121-123) and will have to rely on the involvement of other telecommunications entities, especially in covering the last mile.

167. While there could be problems in institutional terms, by linking an essentially administrative function (i.e. the use of telecommunication) with a substantive function (i.e. the development effort), the issue could be regarded as one of financing and infrastructure. Linking the United Nations telecommunication systems to development efforts will make it possible to have access to the development type of funding for basic construction and infrastructure, provided the actual operation of the network for administrative purposes are done in accordance with cost-effective, "business" type approaches. For the reasons explained above, the Secretariat cannot consider the issue of telecommunications merely from the perspective of a supplier.

B. Corporate Network

168. The apparent dichotomy between considering the United Nations mandate, such as promoting development, and the need to operate a cost-effective, "business" oriented system, suggests that the institutional approach has to be sufficiently flexible to accommodate the different concerns and requirements with a rigid enough institutional machinery to actually deliver the services. This, combined with the unavoidable need to base any system on many existing services and facilities which are only to some degree integrated, compatible or even connected, suggests the Corporate Network approach, where a broad range of facilities and approaches are managed and coordinated in a flexible, virtual manner, within a mutually accepted framework. [97]

1. Rationale for corporate network

169. The United Nations system can be compared operationally to a major international group of organizations working on a worldwide level with many locations communicating with each other. **A number of similar worldwide groups of organizations use a corporate network approach,** [98] **where conceptually a collection and connection of telecommunication services are put together in a structure appropriate to the prevailing circumstances**. Individual elements of the corporate network will be operated and supplied according to circumstances by various parts of the corporation or entities outside the corporation.

170. The crucial element is that the various components are managed and controlled by a common entity working according to a common strategy designed to meet the requirements of the whole corporation. This strategy, which should be based on common, mutually agreed upon principles and framework, can be changed and adjusted as circumstances and demand dictate, thereby achieving a high degree of flexibility and responsiveness.

171. The broad principles of the framework should ensure that the need of users is met exactly as the users determined, that savings are realized so as to be a viable alternative to other service provided, that services are reliable and making use of all prevailing opportunities at the right scale, and that there are no legally or institutionally mandatory services.

(a) Dynamic entity

172. The dynamic nature of such a corporate network implies that the most cost-effective solutions for all levels of services and facilities can be chosen, whether it is outsourcing, sub-

contracting, owner-operated or resorting to other suitable arrangements. In different locations, different solutions can be utilized for the same requirements, as long as certain strategic standards and approaches are implemented. This avoids locking the telecommunication into a rigid choice of technology that will limit the possibilities of using specific, alternative technologies in the circumstances or location, where this might already have been proven more appropriate.

173. A corporate network implemented as an operational strategy, will provide a single, conceptual focus for the telecommunication needs of the United Nations system. The United Nations system will be in a better position to take advantage of the economies of scale by concerted and common action in dealing with the field of telecommunication. Of particular importance here is the common negotiation with major carriers and suppliers. This will be particularly important in major United Nations locations, where a common, single negotiation might establish enough of an influence to achieve rates that will be comparable with anything that the United Nations might be able to offer if operating its own network. [99]

174. The United Nations is, for instance, a major player in the INMARSAT satellite technology market and should therefore - given the general trend of price reduction - be able to negotiate specific rates suitable to the size of the United Nations. One of the first steps would be that the United Nations negotiate to achieve the status of a Duly Authorized Telecommunication Entity (DATE) similar to the status with INTELSAT. The Inspector has seen no evidence of any serious negotiations to this effect, even though a successful outcome of such negotiations would provide similar privileged access to satellite space as for INTELSAT, which would have significant implications for the justification of the use of VSAT technology in the Global Telecommunication Project. In addition, it would have a direct cost-reducing impact on the humanitarian assistance and peace-keeping operations, while maintaining the high degree of flexibility needed from such operations.

175. This leads to the question of whether the nature of the corporate network will not be more virtual or conceptual than actually physical. The unique mandate of the United Nations system, the "working for the common good" aspects and the often major presence of the United Nations system entities in specific locations, might suggest that a United Nations corporate network is more of legal or contractual concept than an actual, physical network.

176. Such a network would be a framework for developing, designing and implementing an operational and logical strategy based on standards, common approaches and mutually agree-upon tariff structures, and responding in an entrepreneurial and efficient manner to the needs of the clients.

177. The overall mandate of the United Nations system does not suggest in principle that the United Nations has any obligation or requirement to operate a telecommunication system as part of its core business, merely because the privileges are there and if there are no operational advantages in doing so. If the United Nations system, because of the circumstances has to do so, it will be at a cost that includes a premium of a management cost for having to operate in an unfamiliar environment for which the organizational culture and management approach is not as cost-effective as in organizations with telecommunication as their core business. [100] It might be that the magnitude of this premium, which can often be a hidden cost not always quantifiable at the outset, makes the total cost of a United Nations

telecommunication system comparable to the rates that can be negotiated from other non-United Nations service providers, even taking into account the special privileges.

178. If through appropriate negotiation within the corporate network, the recurrent rates can be negotiated, compensation could be in the form of utilizing some of the capital cost otherwise envisaged, for supporting telecommunication initiated in areas requiring development.

(b) Ownership, control and operation

179. While there is a need to build a high degree of flexibility and scope for change in the corporate network, the legislative, contractual and definitional arrangements have to be firm, especially as regards basic concepts such as the tariff structure. Despite the common overall purpose of the organizations of the United Nations system, there are differences in the detailed needs and requirements, and it is therefore crucial that the terms and conditions of the services and facilities offered in any corporate network are clearly defined and established. Only if this is the case, will individual organizations be able to carry out the needed corporate planning and make the appropriate commitment.

180. One of the major issues to be resolved in a corporate network, is the degree of commitment needed. There are no legislative requirements for all organizations of the United Nations system to use any telecommunication services offered by a common corporate network, and one should not be needed if the corporate network is implemented appropriately. Any concern about having to make a commitment to a corporate network, is caused by uncertainty about the exact nature and principles of the corporate network, rather than objection to the notion. [101]

181. All organizations of the United Nations system appreciate the possibilities for cost-effective and relevant telecommunication services and facilities from a common United Nations system effort, if it is done appropriately and if the institutional arrangements are such that there is a reasonable assurance that the corporate network will always be competitive, responsive and cost-effective.

182. A particular issue that deserves significant attention is the need to separate ownership - in the sense of control - from operation or access to facilities. The corporate network will, for reasons of economy and correspondence to reality, have limitations in its scope. It will face the issue of setting priorities, and will, at times have to make assessments of where and how to use available resources. The principles for setting up these priorities have to be firmly established, so that any element or part of the corporate network cannot dictate the priorities because of its ownership or operational responsibility for the network.

183. From the discussion in Chapter III, it is clear that the legislative framework confers both specific privileges and obligations in telecommunication in terms of control to the United Nations Organization on behalf of the United Nations system initiative in telecommunication. It is also clear that the obligations do not extend to actually having to own or operate such facilities. If technical, institutional and cost considerations suggest it to be feasible, then it is possible to allow a separate telecommunication entity to establish and manage a flexible corporate network under the legislative authority and control of the legislative parts of the

United Nations Organization, but with clear separation of ownership, management and actual operation. [102]

(c) Role of Individual United Nations organizations

184. The corporate network would cover the complete United Nations system and every entity, if so desire will be part of the corporate network. Each entity will be involved as appropriate in three different functions, as illustrated in the Annex.

(i) Constituents of corporate network

185. The organizations of the United Nations system can be considered constituents or "partners" in the corporate network by virtue of providing support to the establishment of the initial, overall institutional framework and organization of the corporate network. The exact nature of this support or contribution would be in the form of financial and other contributions to the establishment and operation of the institutional mechanism for the corporate network as well as investment in the common United Nations system infrastructure necessary to implement a United Nations system.

186. Provided any such infrastructure remains under the control defined by the legislative framework (see Chapter III), this contribution to any necessary capital cost in the spirit of "shareholder" in a common service organization, could be considered equivalent to the infrastructure provided by any other sub-contractor or supplier working under the control defined in the legislative framework.

187. This particular issue has been of concern to ACABQ in the context of whether it constitutes ownership and therefore could be "construed as ownership and, as such, would contravene the terms of agreement with ITU". [103] However, following the interpretation of the legislative framework considered in this report, the issue is one of control as defined in Chapter III rather than one of ownership, and therefore not appropriate in this context.

(ii) Users of corporate network

188. Each organization can, in accordance with the legislative framework, avail itself of the provided facilities at the cost and tariffs determined. This is likely to be the major involvement of an organization and would be entirely voluntarily and based on an assessment of the cost-effectiveness and appropriateness of the service offered.

(iii) Operators or suppliers

189. In conceptual terms, each organization of the United Nations system can, if appropriate according to the principles of the corporate network, act as an operator or provider of services and facilities within the corporate network. Furthermore, the legislative arrangements as they stand (see Chapter III) appears to allow for many different types of operators - from United Nations system entities to commercial sub-contractors - to act as suppliers or providers of elements of the corporate network. This will be an important factor in establishing the virtual corporate network in a flexible and responsive manner according to the circumstances.

190. For the field-based part of the corporate network - the so-called Thin Route - various field operations of the United Nations system will become operators. The Thin Route concept involves placing smaller earth stations in the United Nations locations in the field, to be operated by the most established organization with the most extensive operations, depending on the circumstances. [104] In this case, several field-based United Nations agencies and programmes, such as UNDP, UNHCR, WFP, etc., will in actual fact become small operators of a small element of the corporate network. [105]

2. Organizational and administrative arrangements

191. ***Having considered all these aspects, the Inspector believes that the solution lies in the establishment of a corporate network entity, totally independent operationally from any particular United Nations agency, to be conceptually responsible for the design, development, establishment and operation of the corporate network.***

(a) Rationale for independent entity

(i) Independent organizational culture

192. This entity has to be independent from the organizational cultures of the United Nations to be able to perform in a cost-effective, technically suitable environment. The ethos has to be on providing services and facilities, through either contractual arrangements or directly through operational arrangements, comparable to what non-United Nations entities can offer, so that the various parts of the United Nations organizations would make use of the corporate network - not because they are legally or institutionally committed to it - but because it provides an appropriate, viable solution. This would imply a separate administrative and organizational set up not confined to the often rigid approach of the United Nations. The management and human resources needed for this type of operation might not feel comfortable in too formal an organizational setting characterized by lengthy procedures.

(ii) Institutional memory capacity

193. The specific mandate of the corporate network entity would have to become the institutional memory of the United Nations system in the field of telecommunication from the operational point of view, recognizing that ITU is that substantive institutional memory on telecommunication overall. It would need to build up detailed knowledge of the telecommunication requirements of the United Nations system (including detailed traffic data) and of the present and future availability of telecommunication services and facilities in the United Nations system and the locations in which the United Nations operate. [106] The analytical, legal and managerial competence to determine what is appropriate, in what circumstances and in what locations, and the ability to design and implement corporate plans for telecommunications would be an essential part of this entity.

(iii) Authority

194. The issue of authority will be complex in a system accustomed to coordination, rather than common authority and action, but if any United Nations telecommunication system is to be successful it has to provide services and facilities of such a high quality that organizations would feel attracted to use them.

(iv) Action-oriented organization

195. The entity would work on a cost-recovery basis for the operational part. It should be supervised by an action and "business" oriented steering committee or board, possibly supplemented with a policy-making entity. The organization should be as lean as possible and should confine itself to providing the overall strategy management on the part of the United Nations system, while the more technically-oriented or operational aspects could be managed by various external sub-contractors and consultants specializing in corporate networks.

(v) The example of the International Computing Centre (ICC)

196. In a system as diverse as the United Nations system, there are many institutional and organizational experiences and approaches of relevance to the establishment of an independent entity of this type within the organizational reality of the United Nations system. One such example is the International Computing Centre (ICC), whose basic mandate is to operate various information systems and applications on behalf of all the major agencies of the United Nations as members or "shareholders" in cooperative manner, within a defined market or area of operations, and under the direction of a management committee. [107]

(b) The advisory role of ITU

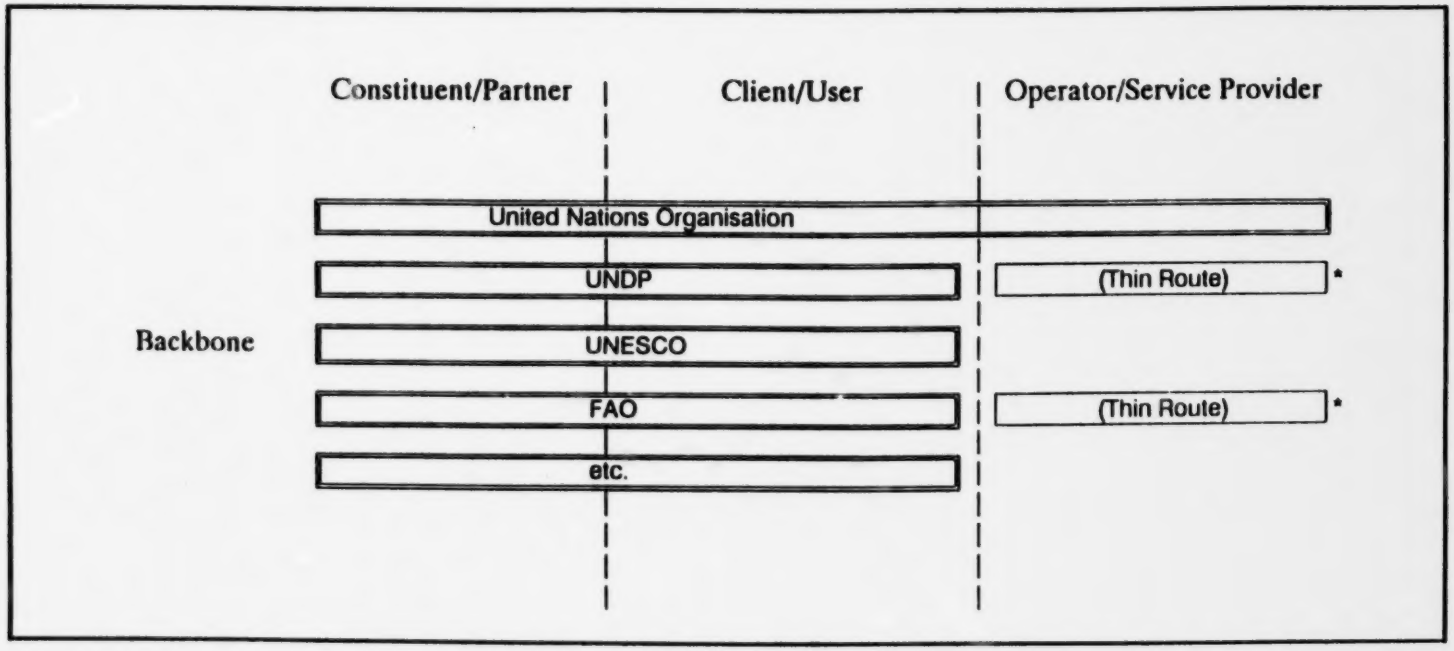
197. To safeguard the unique nature and specific interests of the United Nations system and to ensure that any solutions and approaches recommended by external providers and supplier are not inappropriate, ITU should contribute "internal" consultancy support to the whole United Nations system as the "in-house" telecommunication experts of the United Nations. Resolution 50 of the ITU Plenipotentiary Conference of 1989 actually provides for the involvement of ITU in the telecommunication initiatives arising out of the privileges conferred upon the United Nations Secretariat. While actual implementation might not have reached the levels anticipated in the resolution, then a possible establishment of the corporate network is a new opportunity to fully involve ITU as the advisor on telecommunication systems.

198. ITU has the technical knowledge, the understanding of the unique position of the United Nations and the appropriate relationship with many of the entities such as the national telecommunication administrations, that will be involved in the setting up of this virtual network. Since the corporate network is to be based to the greatest extent possible on existing telecommunication opportunities and facilities, it could be crucial to have an agency with the full competence for determining these opportunities and for establishing appropriate arrangements through negotiation and contractual arrangements.

ANNEX

TELECOMMUNICATION STRATEGY FOR UNITED NATIONS SYSTEM

INVOLVEMENT OF UNITED NATIONS ORGANISATIONS



Note: * = Mainly operation of Earth Stations in smaller United Nations locations in the field

Notes

Chapter I

1. The main report on analysis of costs and benefits of the United Nations Telecommunication Network done by a consultant (United Nations Telecommunications Network, Analysis of Costs and Benefits, July 1992) refers to a 1990 questionnaire prepared by the United Nations Secretariat and send to all specialized agencies, which estimated that expenditure for the whole United Nations system was US$ 50 million annually. Since then, not only have the various agencies increased their level of traffic and therefore total expenditure, but the United Nations organization itself has dramatically increased its expenditure through the growth in peace-keeping operations, so that the estimated expenditure on telecommunications in 1992-93 is US$ 42 millions alone for the regular budget and peace-keeping operations of the United Nations Organization (United Nations telecommunications system, Report of the Secretary General, A/C.5/48/11, 15 November 1994). A recent Joint Inspection Unit report also refers to estimates of this nature (Decentralization of Organizations within the United Nations system, (Part I) JIU/REP/92/6).

2. The work of the Technical Panels of ACCIS has looked at many of these issues, notably the Technical Panel on Information Management Strategies and Standards (TP/IMSS). (See for instance ACCIS 92/011, Report of meeting 15-16 October 1992.)

3. For the purpose of this report, the term United Nations Organization will refer to all organizational entities and programmes reporting to the General Assembly, while the term United Nations Secretariat will exclude the substantive programmes and funds of the United Nations organizations, such as UNDP and UNICEF.

4. For a further explanation of the background, please see Introduction and Chapter 1 in Report on Communications in the United Nations System, JIU/REP/72/7, March 1972.

5. Letter of 13 November 1992 from FAO to JIU.

6. See in particular the work of ACCIS technical panels (ACCIS 93/007 and ACCIS 93/004).

7. Report on Communication in the United Nations System; op. cit.

8. Communications in the United Nations System, JIU/REP/82/6, April 1982.

9. This point was made concisely in a JIU report The changing use of computers in organizations of the United Nations system in Geneva: Management issues (JIU/REP/85/10).

10. Out of six agencies receiving a questionnaire, four agencies replied, with one reply stating that there was no contribution to this study. Two agencies did neither acknowledge receipt or supply answers.

11. In addition to Mozambique and Somalia, where officials were consulted specifically for this study, experience and notes from telecommunication aspects of Cambodia have been considered.

12. A special thanks to UNHCR as Chairman of this Group for keeping the Inspector informed about the work of the Group. The experience with this Working Group has illustrated the usefulness of the professional association concept within the United Nations system.

13. Particularly helpful were consultations with DETECON Deutsche Telepost Consulting GmbH; SITA; a consultant working with the Pan African Development Information System (PADIS) programme of the Economic Commission for Africa (ECA); and with Satelife, a non-governmental organization operating a small scale health information system in Africa, based on satellite technology.

Chapter II

14. For instance, the difference in price between the globally uniform rate in the proposed Global Telecommunication Project, and the special United Nations volume discounts on commercial or leased line rates is US$ 0.01 (Annex I, page 28, in A/C.5/48/11/Rev.1).

15. Call-back is a facility that allows, in principle, a user anywhere in the world to get access to the network of a low-cost location, such as the United States, as if they were dialling from that location. Message handling facilities will "deposit" calls at a particular local or low cost location point for either later transmission, transmission through the least cost or for bulk transmission. Certain agencies and programmes such as UNICEF make prevalent use of these facilities.

16. Resolution 21 (COM4/6) of the ITU Plenipotentiary Conference of 1994.

17. Within the last year, INTERNET has become increasingly more commercial as the original founder of INTERNET, the United States Defence Department and various academic institutions are releasing responsibility. Most observers are expecting that charges will soon be introduced in various forms, and an indication of this is the very recent acquisition of the INTERNET Shopping Network, the electronic shopping facility of INTERNET, by Home Shopping Network, America's biggest television shopping firm ("Is there gold in the INTERNET", The Economist, September 10th 1994, p. 73-74).

18. Examples are the UNDP VSAT-based limited network in Eastern Europe and the Newly Independent States for linking the UNDP field offices in the area; and the various limited satellite-based systems in some Peace-keeping Operations, most notably the INMARSAT network in Cambodia for the United Nations Transitional Authority in Cambodia (UNTAC), linking all the regional and some district offices in the 21 provinces.

19. See in particular ACCIS 93/004 93-05-11 and ACCIS 93/007 93-08-17.

20. These exercises include the work of ACCIS technical panels (Ibid) and the consultancy reports behind the United Nations telecommunication network proposals (UN Telecommunications Network - Analysis of costs and benefits, July 1992).

21. Of the more than 15 organizations, programmes and missions consulted and surveyed for this report, only 3 reported to have any such systems, either partially or in full. Some did indicate that much of this information could be provided through a very labour-intensive, manual exercise.

22. Reports on proposed United Nations telecommunication network estimates that for the United Nations Organization, including PKO, only 15 percent of the total traffic is within the United Nations (e.g. United Nations telecommunications system, Report of the Secretary-General, A/C.5/48/11, 15 November 1993).

23. This is based mainly on estimates from questionnaires received in this study, although the various reports on the United Nations telecommunication system suggest the same (Ibid).

24. For instance, in many African countries, it is a known phenomenon, that traffic to neighbouring countries often technically has to go via stations in Europe and that in terms of tariff, the rate is the same or higher than for similar traffic outside the region.

25. Accurate figures are difficult to establish, since the variety of technologies used to cover the last mile make single management difficult; but communication staff in the field are strongly suggesting this.

26. The particular technology of electronic mail not only makes it more productive for the individual, by eliminating unnecessary, informal communication, but also makes it more economically by controlling the timing and routing of the actual traffic.

27. As an example, the major telecommunication entities working globally are all of a tremendous size, illustrated by the fact that in a recent survey by BusinessWeek of the 1000 biggest corporations in the world, the telecommunication entity was the biggest corporation in almost every country.

28. For an exposé on some of the background to this, see the JIU report on Communications in the United Nations System, JIU/REP/82/6, April 1982, which also recommended the formation of such mechanism.

29. See ACCIS document ACCIS 93/007, 93-08-17 for the final report on the Technical Panel on Information Management Strategies and Standards (TP/IMSS).

30. This initiative should be commended for its idea, but less so for the support that it actually received. With continuous updating of not only the directory listings, but also by including an inventory of telecommunication technologies, facilities and equipment, a very useful system-wide institutional source of data could be created.

31. Report of the ACC Senior Level Task Force on UN Information Systems, October 1993.

32. The task-force recommended that if that any operational tasks of the former ACCIS are still considered important, these tasks should be carried out by a separate entity such as the re-organised ICC on a purely cost-recovery basis (Report of the ACC Senior Level Task Force on UN Information Systems, paragraphs 68-69, page 16).

33. ITU Plenipotentiary Conference Resolution No. 50 (Nice, 1989).

34. These range from special arrangements with certain PTTs and other telecommunication suppliers to the use of specific value-added facilities such a call-back services. In addition, some agencies have, for instance through the nature of their mandate, been able to make arrangements for special services, such as UNEP's use of the MERCURE network.

35. The "back-bone" network is also referred to as the "Thick Route" network and consist of the main satellite stations and connections between the main United Nations locations around the world. It is perceived to be the core of the Global Telecommunication Network.

36. The "Thin Route" is sometimes referred to as the last mile, although strictly speaking the Thin Route only covers traffic from one point in the United Nations locations to other locations outside that geographical area. For instance, the Thin Route does not provide the link between individual United Nations offices within a country, but only a link from one point in that country to similar links in other countries.

37. The RFP procedure in question is proceeding according to correspondence with the UNHCR as the Chairman of the Thin Route Telecommunications Services Working Group.

Chapter III

38. Special thanks to the Legal Advisor of ITU and his team, who have provided invaluable legislative background knowledge to this report. While this contribution has been extremely valuable, any interpretation and conclusion is purely the responsibility of the Inspector.

39. In contrast with the normal practice in the United Nations System, ITU refers to its formal participants as Members, rather than Member States.

40. Agreement between the United Nations and the International Telecommunication Union, Atlantic City, 1947.

41. Ibid., para. 2 of Article XVI.

42. At present the Constitution and the Convention of the International Telecommunication Union, Geneva, 1992, in force since July 1994.

43. Number 38, Article 6 of the Constitution of the International Telecommunication Union, 1992.

44. "ITU Plenipotentiary ...., op. cit.

45. Resolution 55 (initially resolution COM4/25) on the "Use of the United Nations Telecommunication Network for the Telecommunication Traffic of the Specialized Agencies, The Plenipotentiary Conference of the International Telecommunication Union, Kyoto, Japan, 1994.

46. ITU Plenipotentiary Resolution 55 (COM4/25) on "Use of the United Nations Telecommunications Network for the Telecommunication Traffic of the Specialized Agencies", The Plenipotentiary Conference of the International Telecommunication Union, Kyoto, 1994, point 2.

47. Ibid., point 4.

48. See in particular the consultancy reports carried out in 1992 as justification for the United Nations telecommunications project ("UN - Telecommunications Network - Analysis of costs and benefits", July 1992) to the various versions of the final proposal (A/CN.1/R.1169 of 8 April 1993 submitted to ACABQ, A/C.5/48/11 of 15 November 1993, A/C.5/48/11/Add. 1 of 6 May 1994 and final version A/C.5/48/11/Rev. 1 of 23 May 1994).

Chapter IV

49. Evidence of this is everywhere, from the substantive documents of ITU (e.g. the regular World Telecommunication Development Report), to any professional journal on telecommunication and public technology policy to business publications such as Business Week with a recent survey on telecommunications ("Special Report: Information Revolution" Business Week, June 13, 1994) to general interest publications such as The Economist with its recent surveys on telecommunications ("A Survey of Telecommunications - End of the Line", The Economist, October 23, 1993) and on the information technology industry ("A survey of the Computer Industry - Within the whirlwind", The Economist, February 27, 1993) and Newsweek with a survey on the Information Super highway ("Your Electronic Future" Newsweek, June 6, 1994) and a on telecommunications ("Wiring the World" Newsweek, April 5, 1993).

50. One particular aspect of this is the issue of public sector accountability. A recently issued JIU report Accountability and oversight in the United Nations Secretariat (JIU/REP/93/5 and United Nations document A/48/420 and Add. 1 of 12 October 1993) has a brief discussion of this in the international context of the United Nations, and will be further elaborated in a detailed JIU study on Accountability, management improvement and oversight in the United Nations System, just issued.

51. For example, four main groupings of telecommunication providers are planning to offer truly global solutions. These are World Partners alliance of Asian and European carriers, headed by ATT, offering common products; the Concert alliance of BT (British Telecom) of United Kingdom and MCI Inc. of United States of America (which appears to be furthest with plans to offer voice and data services across the world for corporations); the Unisource alliance of PTT Telekom Netherlands, Swiss Telecom PTT and Telia of Sweden and the most recent alliance between Deutsche Bundespost Telekom, France Telekom and Sprint (BusinessWeek, September 26, 1994).

52. Examples of these network in the United States are the McCaw Cellular Communications system and the mobile phone systems operated by GTE and Bell Atlantic Corp. In Europe the pan-European digital cellular network GSM operated by the various European PTTs makes it possible to use the same mobile phone and phone number everywhere in Europe. For reasons of deficient physical infrastructure, mobile phone networks in Eastern Europe has emerged as a viable telecommunication solution for local networks.

53. The ultimate in wireless communication are proposals such as Motorola Inc.'s multi-billion dollar Iridium project, which by using 66 satellites will provide the ability to call from any point on the planet with a simple mobile phone. Other such, at present, highly theoretical projects, is the Teledics project proposed by Microsoft Inc., one of the biggest software and information technology companies in the world.

54. This development has taken place through the whole range of the satellite technology, from more organizations launching satellites to more organizations providing the terrestrial parts of the technology, such a earth stations and mobile satellites. For instance, at a recent Manufacturers Forum arranged by the Thin Route Telecommunications Services Working Group, invitations were extended to over 30 different suppliers worldwide after a screening process involving many more suppliers ("Minutes of the 3rd Meeting of the Thin Route Telecommunications Services Working Group held on 20 January 1994, New York").

55. Some observers note that the price of a INMARSAT "brief-case" station, which is particularly useful for very mobile situations such as emergencies, security threats and peace-keeping missions, have experienced a price change from over US$ 50000 two years ago to less that US$ 5000 with the new M-type of stations.

56. The specific opinions on this are divided depending on the geographical and technical perspective, but this only shows clearly how it is important to have the capacity to assess the situation in a flexible and professional manner in each of the different locations.

Chapter V

57. Batch-processing normally refers to the collection and structuring of data units and traffic, to be processed together and at a specified time, rather than individually and in real time, i.e. when the data unit or traffic is first generated.

58. The need for data-transmission of the IMIS will be substantial, but a full discussion of whether it really needs to be in real-time with instantaneous global updating or whether suitable versions of batch-processing can be used, does not appear to have been carried out, either in reports on IMIS (e.g. "Integrated management information system: Fifth progress reports of the Secretary-General", A/C.5/48/12 of 29 October 1993 and External QA Consultant Report to the IMIS Steering Committee on the Status of the IMIS Implementation , by Klaus Beltzner of December 14, 1993, which raised this as one of the issues to be concerned with) or in the report on the United Nations Global Telecommunication System (see note 38).

59. This implies a situation similar to a normal two-way telephone conversation, with instant answer and reply. A particular form of direct person-to-person communication is video conferring, where individuals in different locations will be able to have visual contact in addition to audio contact. Despite the increasing use by other organizations of this technology with all its advantages, it has not yet been implemented in the United Nations system in any extensive fashion. This could be due to huge transmission capacity actually required for this type of communication.

60. This is a reference to the traffic of documents and drafts of documents, which on occasions, such as in connection with conferences, can be time-critical. Such traffic requires huge capacity at certain times and is an expanding technology as evidenced for instance by the increasing use of Electronic Data Interchange (EDI) systems by many major international organizations and corporations (see for instance "Postal electronic messaging - the work of the Electronic Transmission Standards Group", UNION Postal, 1/1993). A further example is the establishment by IBM Inc. of a dedicated network for EDI purposes that can be used on both a permanent and occasional basis by other organizations similar to a normal telephone network.

61. The ACC Senior Level Task Force recommended that INTERNET would be appropriate for this type of communication for a foreseeable future. However, the increasing commercialisation of the INTERNET could in terms of public access, significantly affect the advantages of INTERNET by no longer making it a cheap and wide-spread technology, available even in less affluent regions.

62. This is not an exhaustive summary, but all the points mentioned here were raised by all agencies and officials consulted.

63. This refers to the core mandate of the United Nations systems as organizations of international cooperation, and not as international providers of telecommunication or other administrative support services.

64. In the final instance, the relevant authority has to define to what extent the purpose justifies the cost, giving the limited resources put at the disposal of the United Nations system by the Member States.

65. In addition to emergency situations, there are situations of direct safety and security threats to the staff and resources of the United Nations.

66. For instance, WIPO has estimated that 90 percent of their traffic is with non-United Nations entities (licensing authorities, commercial companies, research institutes etc.) and often for the purpose of exchanging documents or data on recent patents taken out. Some of this traffic is a result of fee-charging business, which might not only make it possible but also necessary to link to the latest technology available.

67. Part of this is the necessary technical knowledge and organizational flexibility to be responsive to the "clients" or users of the services.

68. For instance, a uniform tariff structure with a single unit price worldwide has the advantage of simplicity, but has an element of subsidy to it where high volume locations such as headquarters locations in North America and Europe - where competitive alternatives are more readily available and competition fierce - could end up supporting low-volume locations in the field. While this might be desirable for other reasons, it provides a built-in bias, that might not correspond to the criteria for cost-effectiveness, especially in view of the fact that most of the agencies of the United Nations System are located in high-volume locations, and that the pre-dominant traffic of the United Nations System is between headquarters locations. An illustration is that the proposed Global Telecommunications of the United Nations operate with a uniform tariff of US$ 0.85 per minute, which will be very competitive in many field based locations, but does not favourable compete with the rates sometimes as low as US$ 0.30 that is possible through economies of scale negotiation and other special arrangement in cross-Atlantic traffic.

69. The portable satellite stations using services such as INMARSAT, are brief-case size equipment, easily operated with less than half an hour instruction and do not require permanent installation. Many field-based United Nations agencies and programmes already have these available for serious security situations.

70. Such technologies are already in use in parts of the United Nations system, notable in PKOs. In all discussions for this, it was never raised as a major issue.

71. See for instance Resolution No. 26 of the Plenipotentiary Conference of the International Telecommunications Union of Buenos Aires (1952) as one of the first legislative initiative relevant to this.

72. The issue of whether the United Nations should possess a mechanism for independent intelligence information or up-to-date information about the socio-economic and political situation in the work is as such beyond the scope of this report. However, some limited work along this lines have been started for operational reasons, for instance in the Department of Peace-keeping Operations and in the Department of Political Affairs of the United Nations Organization (for latest indication of this, see Review of the Efficiency of the Administrative and Financial Functioning of the United Nations - Restructuring of the United Nations Secretariat, Report of the Secretary General, A/49/336, 24 August 1994). The Department of Humanitarian Assistance of the United Nations Organizations has also through its International Emergency Readiness and Response Information System implemented a mechanism for up-to-date coordination and dissemination of disaster and emergency information or intelligence. The telecommunication implications of a possible independent mechanism for gathering of this type of information will have to be considered very carefully.

73. One reason for the inability of providing physical security is that the logistics makes the cost exorbitant. For instance, in some locations such as Addis Ababa, the technically best location is a considerable distance from the United Nations offices and outside the city limits. Providing the kind of security that guarantees total independence is not a feasible undertaking.

74. See the consultants reports on which the proposals for the Global Telecommunication Network are based (Analysis of Communication Needs of the United Nations Communications System and Specialized Agencies, February 1990, by Bruce B. Lusignan; The United Nations Telecommunications Strategy Paper, prepared by Network Engineering and Planning Section, Telecommunications and Computer Operations Service, Electronic Services Divisions, United Nations Secretariat, July 1991; and UN - Telecommunications Network - Analysis of costs and benefits, July 1992).

75. Such technologies are radio-links, mobile telephone systems and use of the domestic telephone lines. Of course, if United Nations agencies are located in same premises, and avail of common services, this would be less of an issue (see the JIU report on the United Nations Common Premises and Services in the Field, JIU/REP/94/8).

76. There is no organization in the United Nations system, including ITU, with the obligation according to its mandate to operate a telecommunication service.

Chapter VI

77. See previous note 46.

78. "United Nations telecommunications system". Draft Resolution submitted by the Chairman following informal consultations, A/C.5/48/L.75 of 11 July 1994.)

79. The technical implications of having approved the upgrading of the earth-stations in New York and Geneva as well as the establishment of the European hub are not quite apparent, especially since the major justification for the need to upgrade and establish these facilities, is the implementation of the complete project. Without the completion of the back-bone connection to United Nations locations in Africa and Asia, and specifically the Thin Route, there is less need for a European hub to act as the switching point of traffic between these locations and New York.

80. Programme Budget for the Biennium 1994-95, United Nations telecommunications system, Report of the Secretary-General, A/C.5/49/26, 3 November 1994.

81. All existing or potential service providers in the field of telecommunication are trying to obtain the best possible data and estimate of the demand for its services. While that is a complicated, complex and uncertain exercise for the general provider working for the general public with, in principle, an indefinite number of potential customers, a United Nations telecommunication system will be confined to a defined and limited number of potential clients. It should therefore, in theory, be possible to obtain a very accurate projection of the demand.

82. This view was less apparent for the Thin Route part of the initiative, in which the field-based agency will be playing a more direct role in the operations and where there are fewer alternatives, leading to more direct interest.

83. A quote from the minutes of the Inter-agency Working Group Meeting on the Backbone Network, illustrates this approach by stating "*The cost of the service will be very competitive with the PTT environment. Unfortunately, the UN could not come up with pricing on the network since they do not know what the utilisation is going to be ... If the UN can get any indication from the agencies as to the traffic they would be interested in putting over the network, the UN may [emphasis by the Inspector] be able to come up with tariffs on the service*" (Minutes of the Inter-agency Working Group Meeting on the Backbone Network, Geneva, 25 October 1993, prepared by the Electronic Services Division of the United Nations Secretariat as Chairman of the working group).

84. An overwhelming majority of the officials consulted and questionnaire received indicated this.

85. For instance, the project compares the two extreme cases of a situation with no global telecommunication network, relying fully on the existing United Nations facilities combined with commercial facilities, and a situation of a fully implemented United Nations Global Telecommunication Project. There is little consideration of a combination of these extreme cases or for that matter, the range of costs, giving the trend of reduction in general commercial telecommunication charges, that might apply to the commercial traffic. Much of the cost estimate is also based on rates and cost from 1992-93, since when there is likely to have been relatively significant changes in price levels.

86. This is, in simple terms, a matter of the priorities of the network for use of scarce funds.

87. A particular aspect of this is the last mile within the United Nations premises. All agencies, even agencies not working extensively in the field, expressed some concern over whether the internal infrastructure of the United Nations premises in terms of telecommunication facilities such as automated switch boards (e.g. PABXs), would be sufficient. For instance, at ECA, the concern was that while the telecommunication facilities outside the organization might be taken care of with this project, if the internal network and telephone system were not sufficiently improved through more resources, much of the benefit of any global initiatives would disappear.

88. This is one of the areas of the greatest concern for the Member States and therefore one that should have been adequately addressed in the proposals.

89. Increasingly, as PKOs have a greater civilian character through humanitarian assistance, election support and rehabilitation of civilian authorities, this will be even more important. For instance, in Mozambique, the main thrust on the civilian communications of ONUMOZ, has been caused by the need for an effective communication system in place for the elections.

90. Programme Budget for the Biennium 1994-95, United Nations telecommunications system, Report of the Secretary-General, A/C.5/49/26, 3 November 1994.

91. Ibid., paras. 16, page 4.

92. Ibid., para. 16, page 4.

93. The Inspector had different information from different parties to these arrangements, but was unable to obtain further information from the United Nations secretariat as to the exact current status of this proposal and its incorporation in the proposed Global Telecommunication Project.

Chapter VII

94. Most officials from field-based agencies testified to this, but most interestingly, several officials at different levels of the Organization of African Unity (OAU), whom the Inspector has very fruitful consultations with, strongly emphasized this point.

95. Many officials, especially in the field, close to technical cooperation argued very strongly for this. For some, including officials at the Organization of African Unity, it was incomprehensible that the United Nations was contemplating establishing an infrastructure of such a nature and with such potential for becoming a significant tool in such an important field of development, without serious and detailed consideration of how this would affect the development situation.

96. In this way, the United Nations telecommunications initiative could become a direct technical assistance project for the PTTs, where the circumstances and locations suggested so.

97. Much of the following discussion is based on a close study of various material prepared for UNHCR by DETECON Deutsche Telepost Consulting GmbH and KPMG (one of the big accounting and management consultancy firms) as an example of the concept of a corporate network ("OptÓcom - The Complete Service for Communication Management", 1993 and "Observations and Preliminary Ideas concerning Future Telecommunication Services in UNHCR"). This material was prepared in considerable detail free of a charge with a proposal to provide further specifications free of charge if so desired by UNHCR (correspondence between UNHCR and DETECON). This illustrates how, in the increasingly competitive world of telecommunication, the United Nations represents such a major client to the providers of telecommunication, that certain preferential treatment can be obtained by the United Nations.

98. For example, most transnational cooperations such as IBM, Exxon and Ford have established such types of corporate network.

99. There are examples from aspects of communication, namely postal communication, of how common negotiation has lead to these rates. Unfortunately, there are also cases where individual agencies through a very concerted action have been able to achieve these rates on individual basis, but without informing other agencies in the same location, so that those agencies could possible avail of the same opportunities.

100. This type of hidden cost of management is experienced in many aspects of organisational life. For instance, this has often been considered the cause of why some apparently very suitable mergers of organisations in terms of complementary activities, have failed because the cost for management of dealing with unfamiliar territory has been too high.

101. There was absolute uniform agreement from all officials consulted that the notion of a corporate network as the expression of common United Nations initiatives was very appropriate.

102. While there was almost total agreement on the need to separate ownership and operation, then there was such a divergence of views on the implications of the legal framework, that short of a major legal study, it appeared to be beyond the scope of the Joint Inspection Unit to attempt any more detailed exposé of this particular point.

103. "Tenth Report of the Advisory Committee on Administrative and Budgetary Questions, Programme Budget for the biennium 199-95, United Nations Telecommunications system", A/48/7/Add.9, 7 June 1994, page 5, para. 17.

104. This has been the subject of extensive discussions in the Thin Route Telecommunications Services Working Group (see for instance "Minutes of the 2nd Meeting of the Thin Route Telecommunications Services Working Group" held on 26th October 1993 in Geneva and "Minutes of the 3rd Meeting of the Thin Route Telecommunications Services Working Group", held on 20th January 1994 in New York).

105. The specific interpretation of whether for instance programmes of the United Nations Organization such as UNDP, UNHCR and UNICEF can be considered as part of the United Nations Secretariat for the purpose of operating telecommunications services, is one of the specific legalistic issues to be clarified.

106. This would - bearing in mind the notion of linking United Nations telecommunication initiatives to the general mandate of development - provide an important depository of knowledge that not only would be helpful to the United Nations System in its operational use, but also in its substantive efforts in development.

107. While an assessment of ICC is not part of this report, it is suggested that this experience is looked at in further detail. A starting point would be the suggestions made by the ACC Senior Level Task Force on United Nations Information System. (Report of the ACC Senior Level Task Force on UN Information Systems, October 1993, para. 68-69. p. 16) concerning the revamped ICC, which is a precedence for the establishment of such specific-purpose entities, working on defined task on a cost-recovery bases and in a manner equivalent to other "business"-oriented organizations.